



Vincotech

**B0-SP10FSA600S7-LM69F98T
B0-SP10FSB600S7-LM79F98T**

datasheet

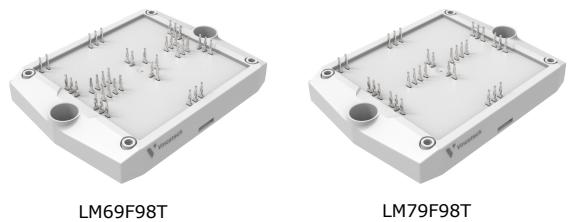
flowFC S3 split

950 V / 600 A

Features

- Low inductive mid-power package
- High efficient Flying Capacitor topology
- Optimized for 1500 V applications
- Integrated DC capacitors

flow S3 12 mm housing



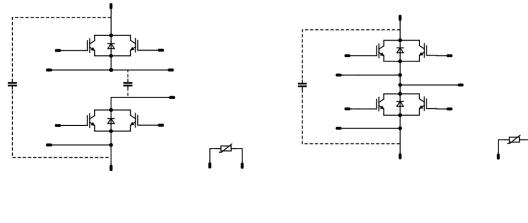
Target applications

- Solar Inverters

Types

- B0-SP10FSA600S7-LM69F98T
- B0-SP10FSB600S7-LM79F98T

Schematic



LM69F98T

LM79F98T



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**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**

datasheet

Maximum Ratings

$T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
AC 1 Switch L				
Collector-emitter voltage	V_{CES}		950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	357	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	636	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 1 Diode L

Peak repetitive reverse voltage	V_{RRM}		950	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	295	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	506	W
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 1 Switch H

Collector-emitter voltage	V_{CES}		950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	357	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	636	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 1 Diode H

Peak repetitive reverse voltage	V_{RRM}		950	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	295	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	506	W
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$



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datasheet

Maximum Ratings

$T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
AC 2 Switch L				
Collector-emitter voltage	V_{CES}		950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	357	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	636	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 2 Diode L

Peak repetitive reverse voltage	V_{RRM}		950	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	295	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	506	W
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 2 Switch H

Collector-emitter voltage	V_{CES}		950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	357	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	636	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$

AC 2 Diode H

Peak repetitive reverse voltage	V_{RRM}		950	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	295	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	506	W
Maximum junction temperature	T_{jmax}		175	$^\circ\text{C}$



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datasheet

Maximum Ratings

$T_j = 25 \text{ }^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Flying Capacitor				
Maximum DC voltage	V_{MAX}		1000	V
Operation Temperature	T_{op}		-55 ... 125	$^\circ\text{C}$

Capacitor (DC)

Maximum DC voltage	V_{MAX}		1500	V
Operation Temperature	T_{op}		-55 ... 125	$^\circ\text{C}$

Module Properties

Thermal Properties

Storage temperature	T_{sig}		-40...+125	$^\circ\text{C}$
Operation temperature under switching condition	T_{jop}		-40...+($T_{jmax} - 25$)	$^\circ\text{C}$

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage* $t_p = 2 \text{ s}$	6000	V
Isolation voltage	V_{isol}	AC Voltage $t_p = 1 \text{ min}$	2500	V
Creepage distance		LM69F98T LM79F98T	9,77 9,6	mm
Clearance		LM69F98T LM79F98T	8,72 8,22	mm
Comparative Tracking Index	CTI		≥ 600	

*100 % tested in production

**Characteristic Values**

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	

AC 1 Switch L**Static**

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,01002	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		600	25 125 150		1,79 2,05 2,09	2,35 ⁽¹⁾	V
Collector-emitter cut-off current	I_{CES}		0	950		25			12	µA
Gate-emitter leakage current	I_{GES}		20	0		25			600	nA
Internal gate resistance	r_g							0,25		Ω
Input capacitance	C_{res}	$f = 100 \text{ kHz}$	0	25	25	25	39000	834	120	pF
Output capacitance	C_{oes}									
Reverse transfer capacitance	C_{res}									
Gate charge	Q_g		15		0	25		1380		nC

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{\text{paste}} = 4,4 \text{ W/mK}$ (PTM)						0,15		K/W
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Dynamic

Turn-on delay time	$t_{d(on)}$	$R_{gon} = 2 \Omega$ $R_{goff} = 2 \Omega$	± 15	600	600	25		197,76		
Rise time	t_r					125		198,72		ns
						150		199,36		
Turn-off delay time	$t_{d(off)}$					25		25,92		
						125		28,16		
Fall time	t_f					150		28,48		ns
Turn-on energy (per pulse)	E_{on}	$Q_{fFWD}=17,07 \mu\text{C}$ $Q_{rFWD}=36,66 \mu\text{C}$ $Q_{tFWD}=42 \mu\text{C}$				25		148,16		
Turn-off energy (per pulse)	E_{off}					125		170,88		
						150		176,64		ns
						25		23,26		
						125		41,21		
						150		46,35		ns
						25		29,9		
						125		33,52		
						150		33,7		mWs
						25		15,19		
						125		23,63		
						150		25,62		mWs



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Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max			

AC 1 Diode L

Static

Forward voltage	V_F				600	25 125 150	2,1	2,58 2,41 2,35	2,8 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 950$ V			25			24	μ A	

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,19		K/W
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Dynamic

Peak recovery current	I_{RRM}	$di/dt=19055$ A/ μ s $di/dt=19448$ A/ μ s $di/dt=19304$ A/ μ s	± 15	600	600	25 125 150		361,81 540,11 587,56		A
Reverse recovery time	t_{rr}					25 125 150		142,07 173,11 182,02		ns
Recovered charge	Q_r					25 125 150		17,07 36,66 42		μ C
Reverse recovered energy	E_{rec}					25 125 150		4,8 12,05 14,24		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125 150		15319 13469 14003		A/μ s

**Characteristic Values**

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	

AC 1 Switch H**Static**

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,01002	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		600	25 125 150		1,79 2,05 2,09	2,35 ⁽¹⁾	V
Collector-emitter cut-off current	I_{CES}		0	950		25			12	µA
Gate-emitter leakage current	I_{GES}		20	0		25			600	nA
Internal gate resistance	r_g							0,25		Ω
Input capacitance	C_{res}	$f = 100 \text{ kHz}$	0	25	25	25	39000		pF	
Output capacitance	C_{oes}									
Reverse transfer capacitance	C_{res}									
Gate charge	Q_g		15		0	25		1380		nC

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{\text{paste}} = 4,4 \text{ W/mK}$ (PTM)						0,15		K/W
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Dynamic

Turn-on delay time	$t_{d(on)}$	$R_{gon} = 2 \Omega$ $R_{goff} = 2 \Omega$	± 15	600	600	25		197,76		
Rise time	t_r					125		198,72		
						150		199,36		ns
Turn-off delay time	$t_{d(off)}$					25		25,92		
						125		28,16		
Fall time	t_f					150		28,48		ns
Turn-on energy (per pulse)	E_{on}	$Q_{fFWD}=17,07 \mu\text{C}$ $Q_{rfFWD}=36,66 \mu\text{C}$ $Q_{ffFWD}=42 \mu\text{C}$				25		148,16		
						125		170,88		
						150		176,64		ns
Turn-off energy (per pulse)	E_{off}					25		23,26		
						125		41,21		
						150		46,35		ns
						25		29,9		
						125		33,52		
						150		33,7		mWs
						25		15,19		
						125		23,63		
						150		25,62		mWs



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datasheet

Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	Max

AC 1 Diode H

Static

Forward voltage	V_F				600	25 125 150	2,1	2,58 2,41 2,35	2,8 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 950$ V			25				24	µA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,19		K/W
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Dynamic

Peak recovery current	I_{RRM}	$di/dt=19055$ A/µs $di/dt=19448$ A/µs $di/dt=19304$ A/µs	± 15	600	600	25 125 150		361,81 540,11 587,56		A
Reverse recovery time	t_{rr}					25 125 150		142,07 173,11 182,02		ns
Recovered charge	Q_r					25 125 150		17,07 36,66 42		µC
Reverse recovered energy	E_{rec}					25 125 150		4,8 12,05 14,24		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125 150		15319 13469 14003		A/µs



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Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	

AC 2 Switch L

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,01002	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		600	25 125 150		1,79 2,05 2,09	2,35 ⁽¹⁾	V
Collector-emitter cut-off current	I_{CES}		0	950		25			12	µA
Gate-emitter leakage current	I_{GES}		20	0		25			600	nA
Internal gate resistance	r_g							0,25		Ω
Input capacitance	C_{res}	$f = 100$ kHz	0	25	25	25	39000	834	120	pF
Output capacitance	C_{oes}									
Reverse transfer capacitance	C_{res}									
Gate charge	Q_g		15		0	25		1380		nC

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,15		K/W
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Dynamic

Turn-on delay time	$t_{d(on)}$	$R_{gon} = 2 \Omega$ $R_{goff} = 2 \Omega$	± 15	600	600	25		199,04		
Rise time	t_r					125		200,32		ns
						150		200,64		
Turn-off delay time	$t_{d(off)}$					25		24,32		
						125		26,56		
Fall time	t_f					150		27,52		ns
Turn-on energy (per pulse)	E_{on}	$Q_{fFWD}=17,05 \mu C$ $Q_{rFWD}=38,32 \mu C$ $Q_{tFWD}=44,72 \mu C$				25		151,04		
						125		175,36		
						150		181,76		
Turn-off energy (per pulse)	E_{off}					25		22,91		
						125		42,32		
						150		49,49		
						25		29,33		
						125		33,29		
						150		34,4		mWs
						25		15,06		
						125		23,9		
						150		26,74		mWs



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Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	Max

AC 2 Diode L

Static

Forward voltage	V_F				600	25 125 150	2,1	2,58 2,41 2,35	2,8 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 950$ V			25			24	μ A	

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,19		K/W
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Dynamic

Peak recovery current	I_{RRM}	$di/dt=20877$ A/ μ s $di/dt=20334$ A/ μ s $di/dt=20767$ A/ μ s	± 15	600	600	25		377,72			A
Reverse recovery time	t_{rr}					125		572,15			
Recovered charge	Q_r					150		625,39			
Reverse recovered energy	E_{rec}		± 15	600	600	25		138,55			ns
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					125		173,65			
						150		187,29			
			± 15	600	600	25		17,05			μ C
						125		38,32			
						150		44,72			
			± 15	600	600	25		4,65			mWs
						125		12,41			
						150		15,01			
			± 15	600	600	25		16716			A/μ s
						125		15210			
						150		15877			



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datasheet

Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	

AC 2 Switch H

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,01002	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		600	25 125 150		1,79 2,05 2,09	2,35 ⁽¹⁾	V
Collector-emitter cut-off current	I_{CES}		0	950		25			12	µA
Gate-emitter leakage current	I_{GES}		20	0		25			600	nA
Internal gate resistance	r_g							0,25		Ω
Input capacitance	C_{res}	$f = 100$ kHz	0	25	25	25	39000	834	120	pF
Output capacitance	C_{oes}									
Reverse transfer capacitance	C_{res}									
Gate charge	Q_g		15		0	25		1380		nC

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,15		K/W
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Dynamic

Turn-on delay time	$t_{d(on)}$	$R_{gon} = 2 \Omega$ $R_{goff} = 2 \Omega$	± 15	600	600	25		199,04		
Rise time	t_r					125		200,32		ns
						150		200,64		
Turn-off delay time	$t_{d(off)}$					25		24,32		
						125		26,56		
Fall time	t_f					150		27,52		ns
Turn-on energy (per pulse)	E_{on}					25		151,04		
		$Q_{fFWD}=17,05 \mu C$ $Q_{rFWD}=38,32 \mu C$ $Q_{tFWD}=44,72 \mu C$				125		175,36		
						150		181,76		ns
Turn-off energy (per pulse)	E_{off}					25		22,91		
						125		42,32		
						150		49,49		ns
						25		29,33		
						125		33,29		mWs
						150		34,4		
						25		15,06		
						125		23,9		mWs
						150		26,74		



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Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{DS} [V]	I_C [A]	I_D [A]	T_j [°C]	Min	Typ	Max

AC 2 Diode H

Static

Forward voltage	V_F				600	25 125 150	2,1	2,58 2,41 2,35	2,8 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 950$ V			25				24	µA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 4,4$ W/mK (PTM)						0,19		K/W
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Dynamic

Peak recovery current	I_{RRM}	$di/dt=20877$ A/µs $di/dt=20334$ A/µs $di/dt=20767$ A/µs	± 15	600	600	25		377,72		A
Reverse recovery time	t_{rr}					125		572,15		
Recovered charge	Q_r					150		625,39		
Reverse recovered energy	E_{rec}		25			125		138,55		ns
Reverse recovered energy	E_{rec}		125			150		173,65		
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$		150			25		187,29		
						125		17,05		µC
						150		38,32		
						25		44,72		
						125		4,65		mWs
						150		12,41		
						25		15,01		
						125		16716		
						150		15210		A/µs
						25		15877		



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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max		

Flying Capacitor

Static

Capacitance	C	DC bias voltage = 0 V				25		400		nF
Tolerance							-10		10	%
Dissipation factor		$f = 1$ kHz			25		2,5			%

Capacitor (DC)

Static

Capacitance	C	DC bias voltage = 0 V				25		112		nF
Tolerance							-10		10	%
Dissipation factor		$f = 1$ kHz			25		2,5			%

Thermistor

Static

Rated resistance	R					25		22		kΩ
Deviation of R_{100}	$A_{R/R}$	$R_{100} = 1484 \Omega$				100	-5		5	%
Power dissipation	P							5		mW
Power dissipation constant	d				25		1,5			mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %					3962			K
B-value	$B_{(25/100)}$	Tol. ±1 %					4000			K
Vincotech Thermistor Reference								I		

(¹) Value at chip level

(²) Only valid with pre-applied Vincotech thermal interface material.



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AC 1, AC 2 Switch L Characteristics

figure 1. IGBT

Typical output characteristics
 $I_C = f(V_{CE})$

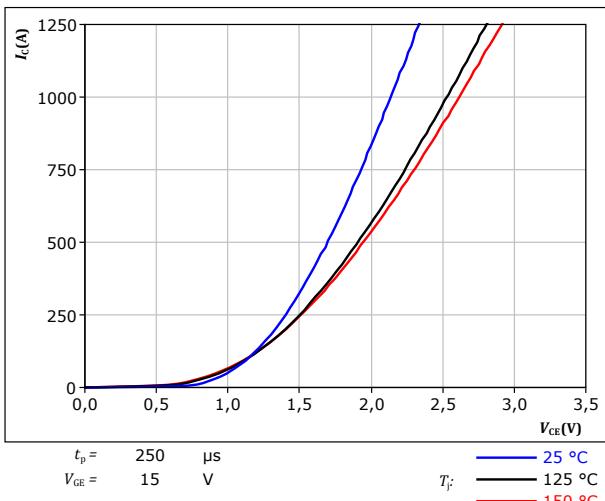


figure 2. IGBT

Typical output characteristics
 $I_C = f(V_{CE})$

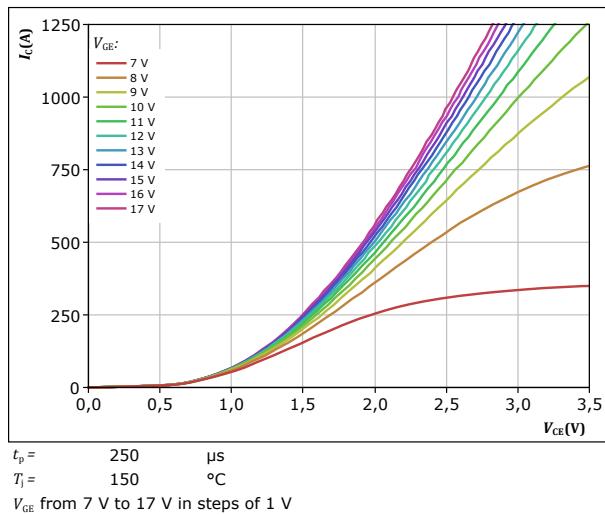


figure 3. IGBT

Typical transfer characteristics
 $I_C = f(V_{GE})$

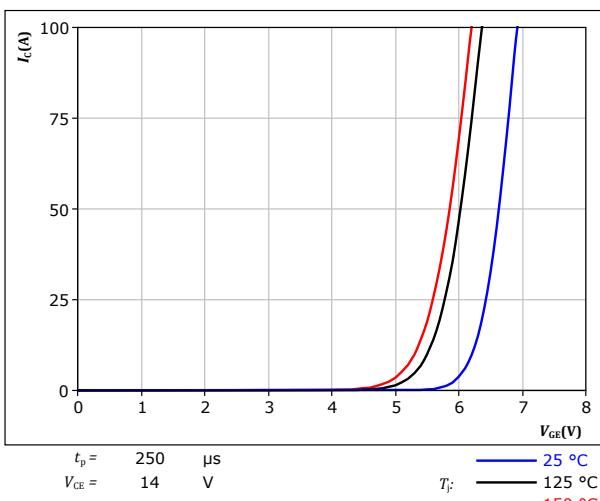
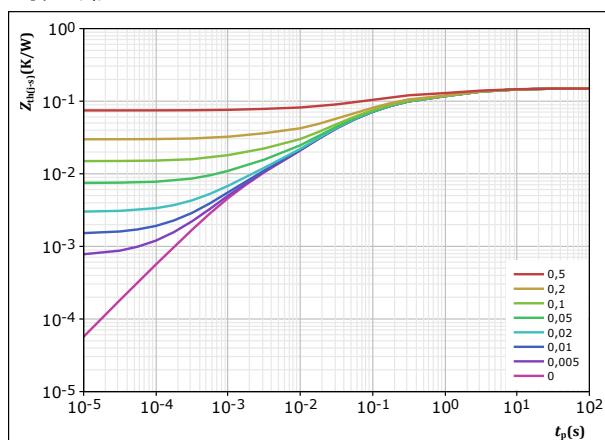


figure 4. IGBT

Transient thermal impedance as a function of pulse width
 $Z_{th(j-s)} = f(t_p)$



$$D = t_p / T$$

$$R_{th(j-s)} = 0,149 \text{ K/W}$$

IGBT thermal model values

R (K/W)	τ (s)
1,26E-02	8,85E+00
4,17E-02	1,44E+00
6,06E-02	1,19E-01
2,86E-02	2,31E-02
5,81E-03	1,46E-03

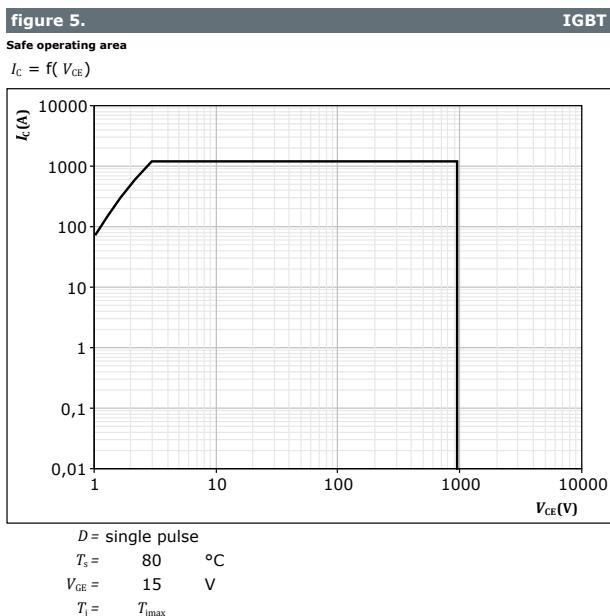


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datasheet

AC 1, AC 2 Switch L Characteristics





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datasheet

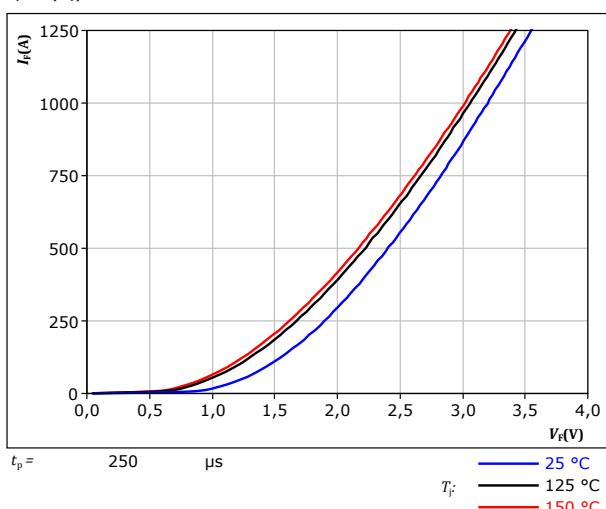
AC 1, AC 2 Diode L Characteristics

figure 6.

Typical forward characteristics

$$I_F = f(V_F)$$

FWD



$$t_p = 250 \mu\text{s}$$

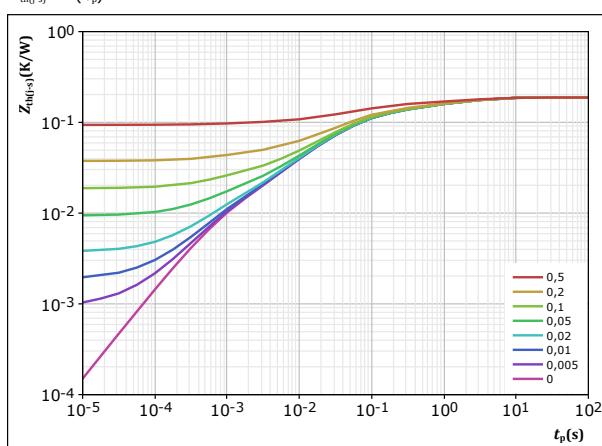
$T_F:$
 $\quad \quad \quad 25^\circ\text{C}$ $\quad \quad \quad 125^\circ\text{C}$
 $\quad \quad \quad 150^\circ\text{C}$

figure 7.

Transient thermal impedance as a function of pulse width

$$Z_{th(t-s)} = f(t_p)$$

FWD



$$D = \frac{t_p / T}{R_{th(t-s)}} = 0,188 \text{ K/W}$$

FWD thermal model values

$R(K/W)$	$\tau(s)$
2,89E-02	3,31E+00
3,81E-02	5,82E-01
8,22E-02	6,14E-02
3,00E-02	1,08E-02
8,47E-03	7,78E-04



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AC 1, AC 2 Switch H Characteristics

figure 8. IGBT

Typical output characteristics
 $I_C = f(V_{CE})$

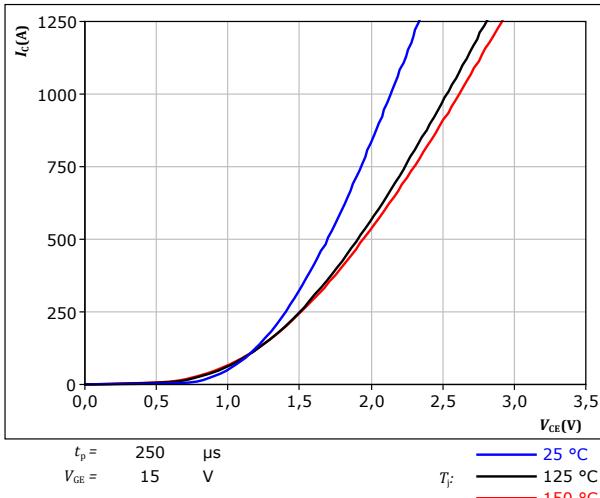


figure 9. IGBT

Typical output characteristics
 $I_C = f(V_{CE})$

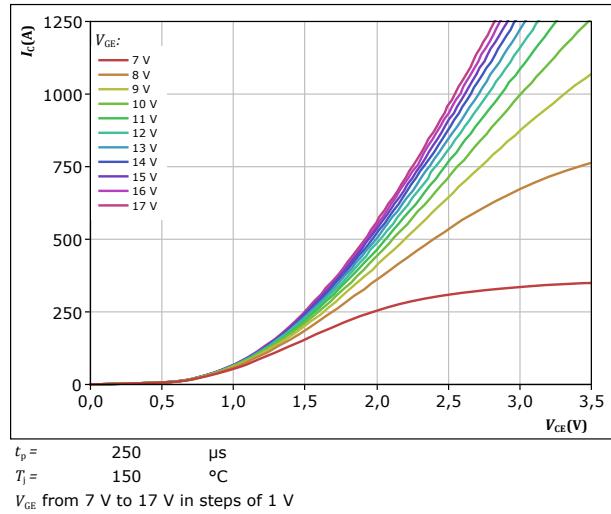


figure 10. IGBT

Typical transfer characteristics
 $I_C = f(V_{GE})$

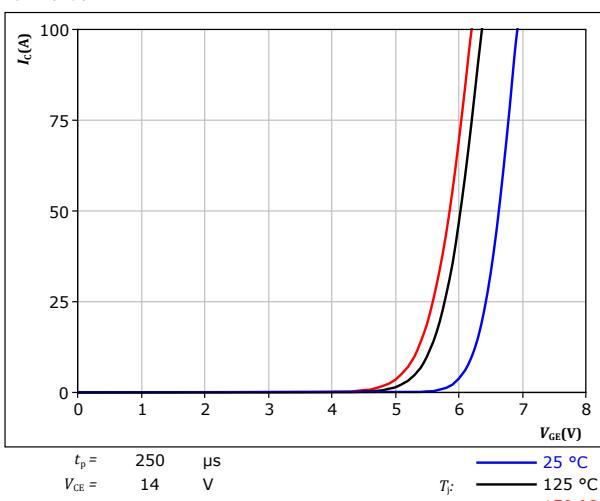
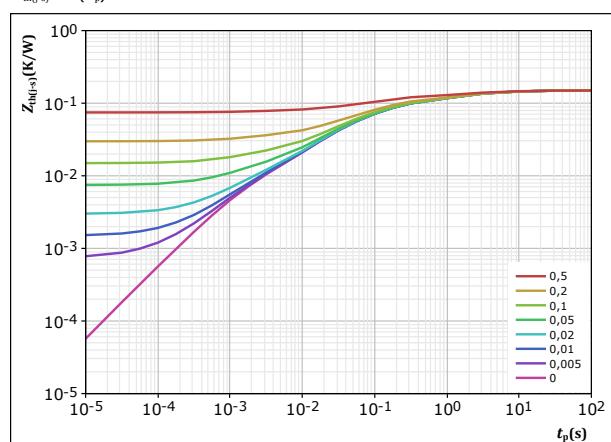


figure 11. IGBT

Transient thermal impedance as a function of pulse width
 $Z_{th(j-s)} = f(t_p)$



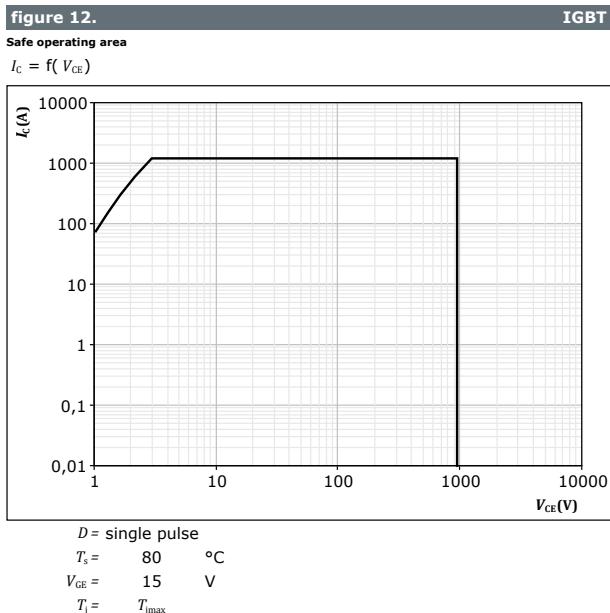


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B0-SP10FSB600S7-LM79F98T**

datasheet

AC 1, AC 2 Switch H Characteristics





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datasheet

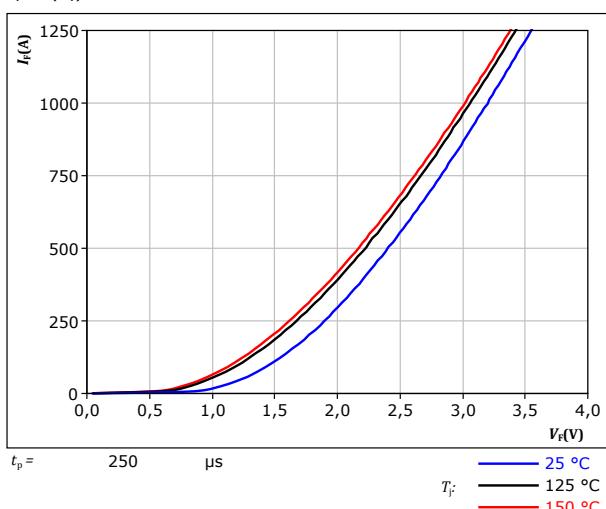
AC 1, AC 2 Diode H Characteristics

figure 13.

Typical forward characteristics

$$I_F = f(V_F)$$

FWD



$$t_p = 250 \mu\text{s}$$

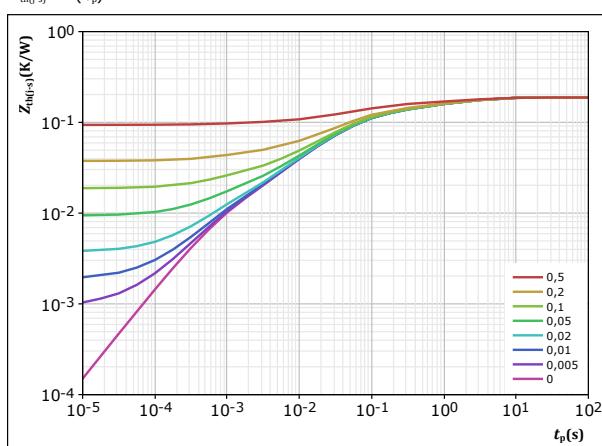
T_F :
— 25 °C
— 125 °C
— 150 °C

figure 14.

Transient thermal impedance as a function of pulse width

$$Z_{th(t-s)} = f(t_p)$$

FWD



$$D = \frac{t_p / T}{R_{th(t-s)}} = 0,188 \text{ K/W}$$

FWD thermal model values

R (K/W)	τ (s)
2,89E-02	3,31E+00
3,81E-02	5,82E-01
8,22E-02	6,14E-02
3,00E-02	1,08E-02
8,47E-03	7,78E-04



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B0-SP10FSB600S7-LM79F98T**

datasheet

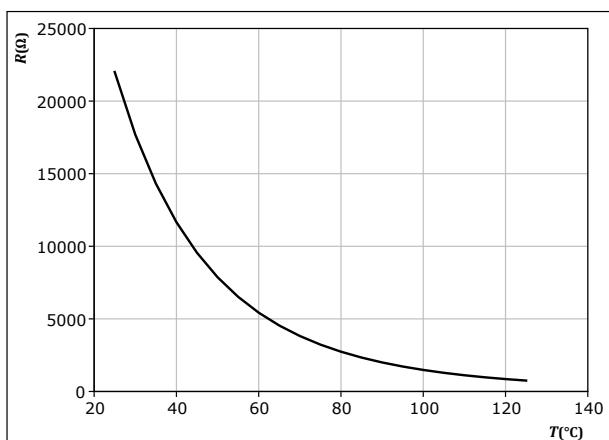
Thermistor Characteristics

figure 15.

Thermistor

Typical NTC characteristic as function of temperature

$$R_T = f(T)$$





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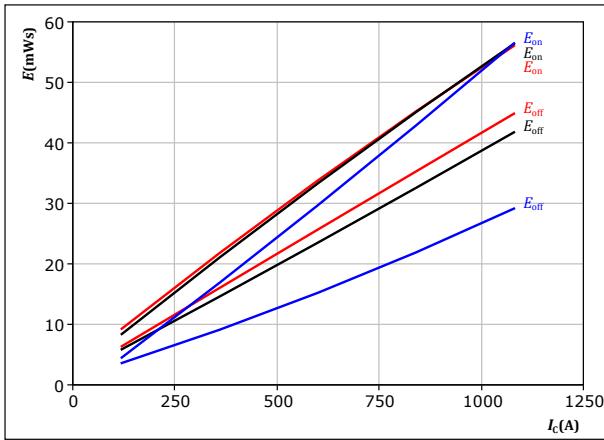
**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**
datasheet

AC 1 Switching Characteristics L

figure 16.

Typical switching energy losses as a function of collector current

$$E = f(I_c)$$



With an inductive load at

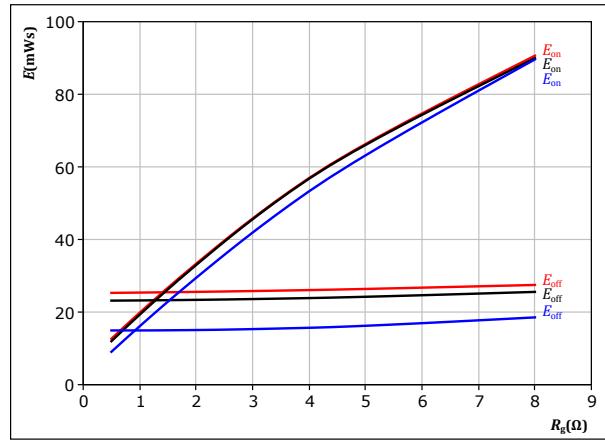
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ R_{gon} &= 2 \Omega \\ R_{goff} &= 2 \Omega \end{aligned}$$

IGBT

figure 17.

Typical switching energy losses as a function of gate resistor

$$E = f(R_g)$$



With an inductive load at

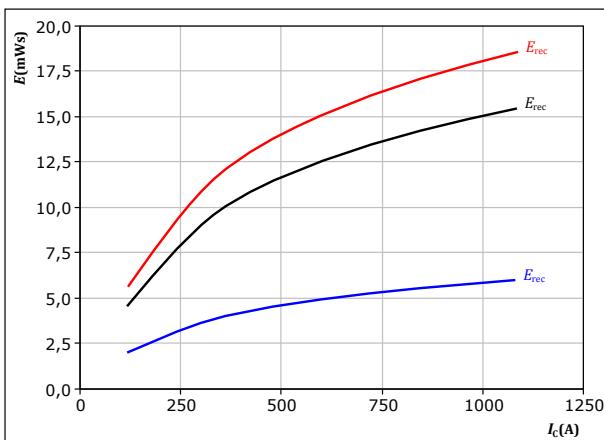
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ I_C &= 600 \text{ A} \end{aligned}$$

IGBT

figure 18.

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_c)$$



With an inductive load at

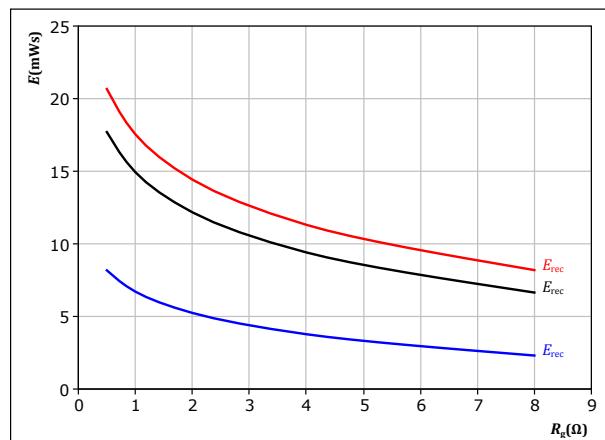
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ R_{gon} &= 2 \Omega \end{aligned}$$

FWD

figure 19.

Typical reverse recovered energy loss as a function of gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at

$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ I_C &= 600 \text{ A} \end{aligned}$$

FWD



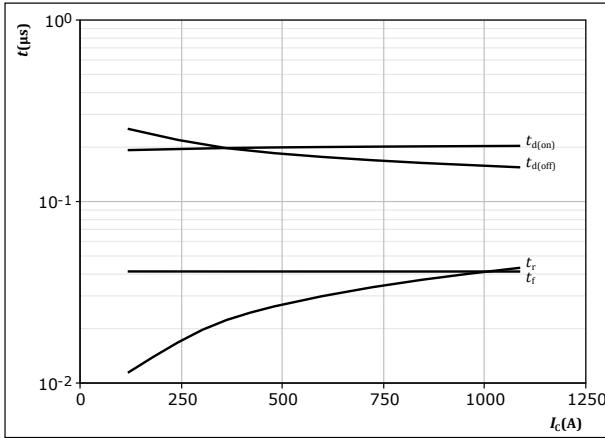
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datasheet

AC 1 Switching Characteristics L

figure 20. IGBT

Typical switching times as a function of collector current
 $t = f(I_C)$

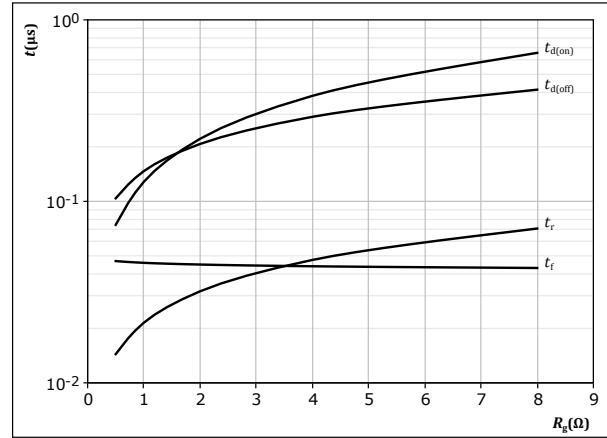


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$

figure 21. IGBT

Typical switching times as a function of gate resistor
 $t = f(R_g)$

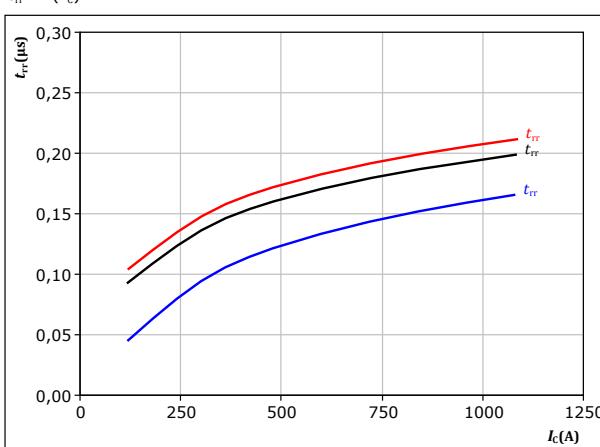


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$

figure 22. FWD

Typical reverse recovery time as a function of collector current
 $t_{rr} = f(I_C)$

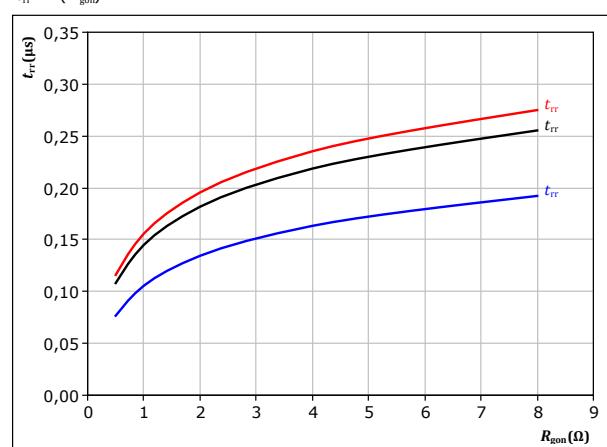


With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

figure 23. FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor
 $t_{rr} = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$



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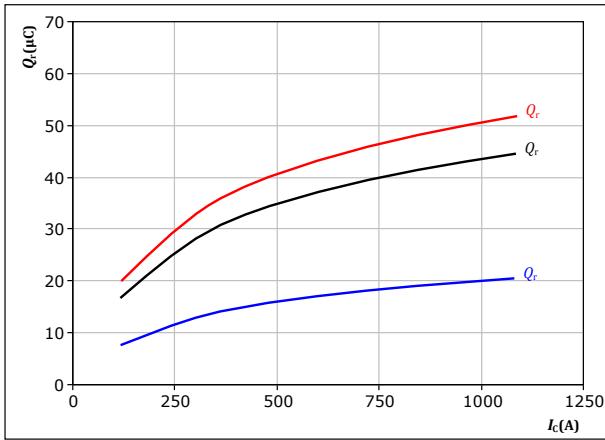
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datasheet

AC 1 Switching Characteristics L

figure 24.

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$



With an inductive load at

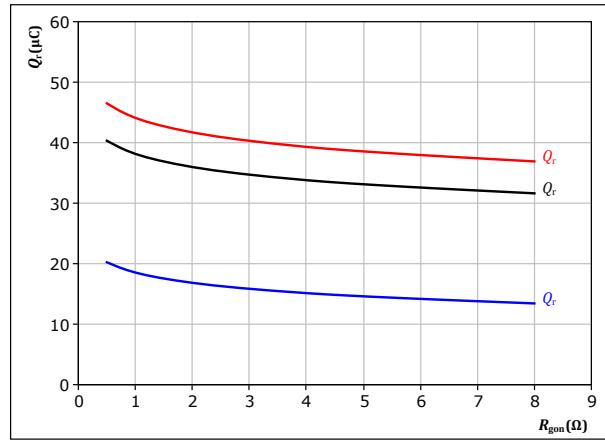
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ R_{gon} &= 2 \Omega \end{aligned}$$

FWD

figure 25.

Typical recovered charge as a function of turn on gate resistor

$$Q_r = f(R_{gon})$$



With an inductive load at

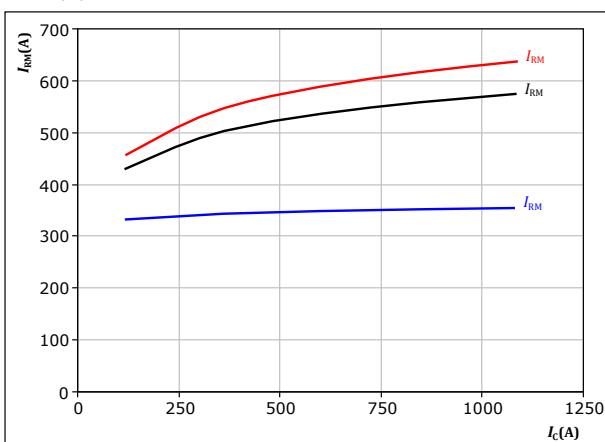
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ I_c &= 600 \text{ A} \end{aligned}$$

FWD

figure 26.

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$



With an inductive load at

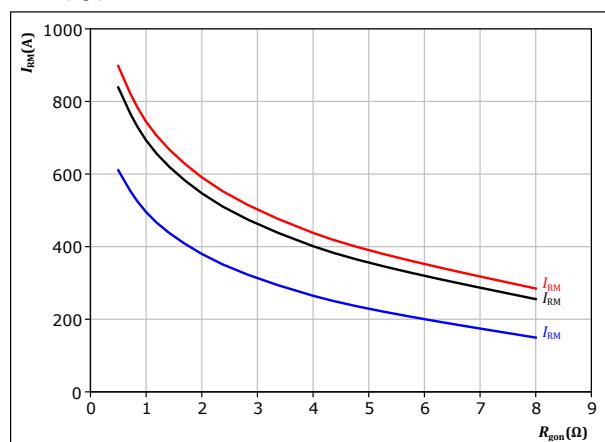
$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ R_{gon} &= 2 \Omega \end{aligned}$$

FWD

figure 27.

Typical peak reverse recovery current as a function of turn on gate resistor

$$I_{RM} = f(R_{gon})$$



With an inductive load at

$$\begin{aligned} V_{CE} &= 600 \text{ V} \\ V_{GE} &= \pm 15 \text{ V} \\ I_c &= 600 \text{ A} \end{aligned}$$

FWD



Vincotech

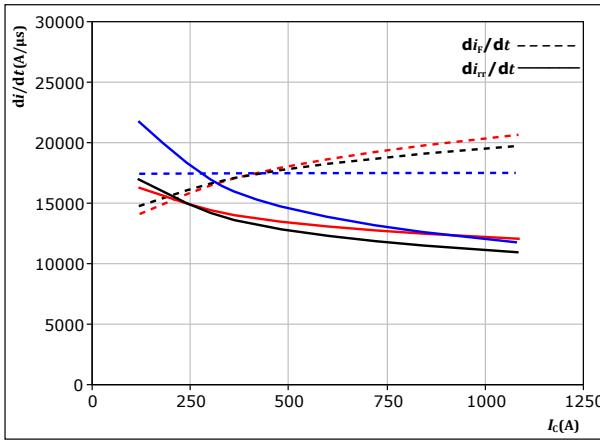
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datasheet

AC 1 Switching Characteristics L

figure 28. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current

$di_f/dt, di_{rr}/dt = f(I_c)$



With an inductive load at

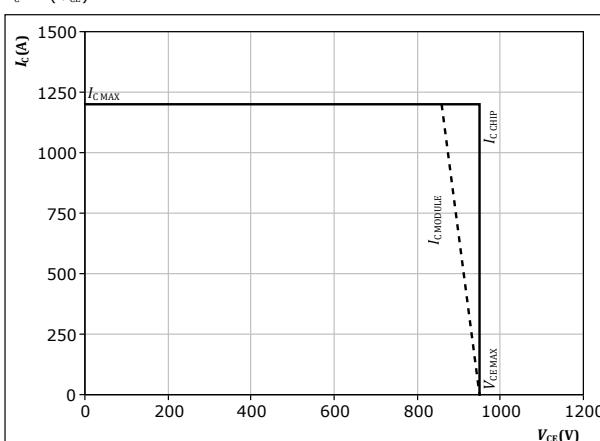
$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

$T_j:$ — 25 °C
 — 125 °C
 — 150 °C

figure 30. IGBT

Reverse bias safe operating area

$I_c = f(V_{CE})$

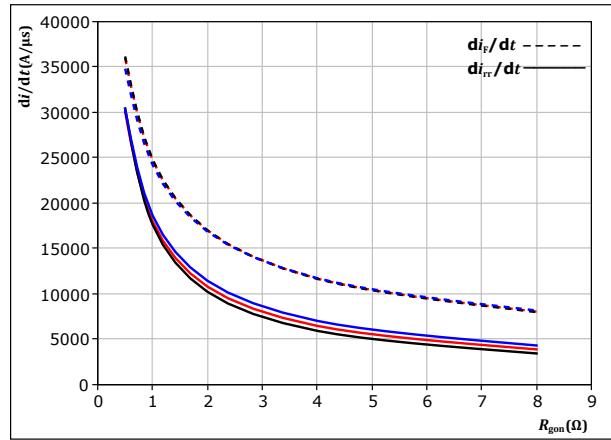


At $T_j = 150 \text{ }^\circ\text{C}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$

figure 29. FWD

Typical rate of fall of forward and reverse recovery current as a function of turn on gate resistor

$di_f/dt, di_{rr}/dt = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_c = 600 \text{ A}$

$T_j:$ — 25 °C
 — 125 °C
 — 150 °C



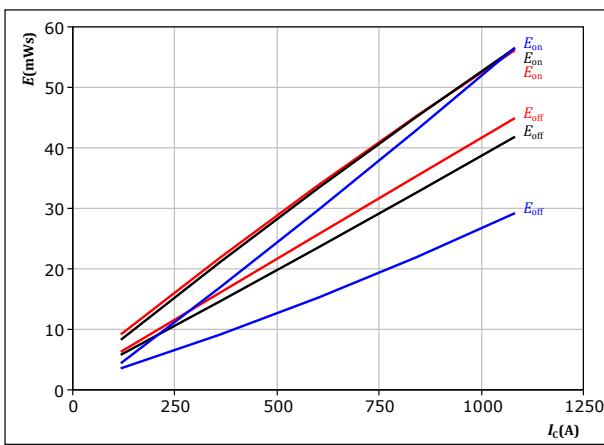
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AC 1 Switching Characteristics H

figure 31. IGBT

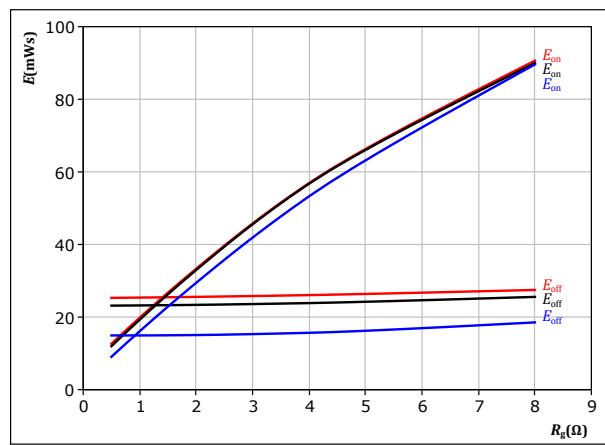
Typical switching energy losses as a function of collector current
 $E = f(I_c)$



With an inductive load at
 $V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $R_{gon} = 2$ Ω $T_f = 150^\circ\text{C}$
 $R_{goff} = 2$ Ω

figure 32. IGBT

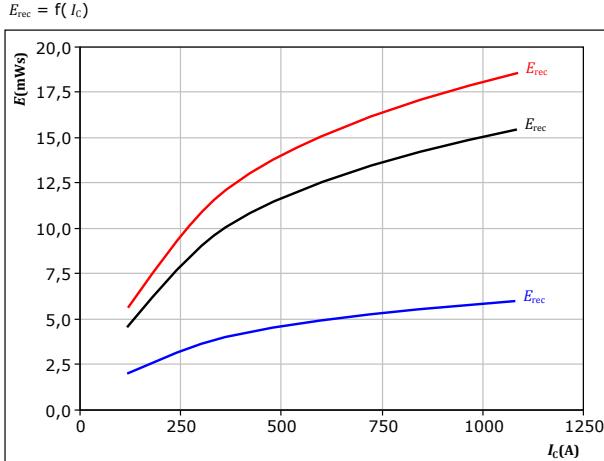
Typical switching energy losses as a function of gate resistor
 $E = f(R_g)$



With an inductive load at
 $V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $I_c = 600$ A $T_f = 150^\circ\text{C}$

figure 33. FWD

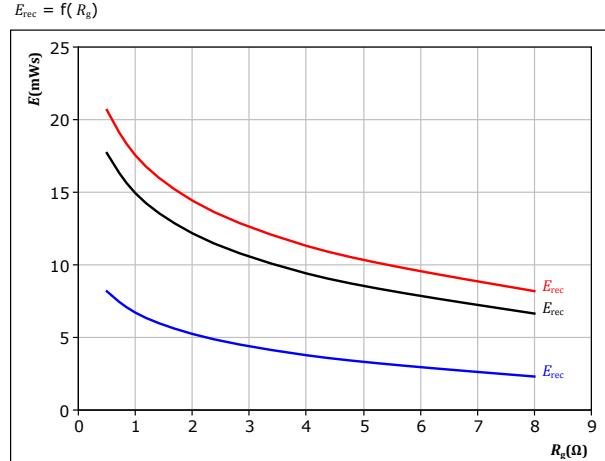
Typical reverse recovered energy loss as a function of collector current
 $E_{rec} = f(I_c)$



With an inductive load at
 $V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $R_{gon} = 2$ Ω $T_f = 150^\circ\text{C}$

figure 34. FWD

Typical reverse recovered energy loss as a function of gate resistor
 $E_{rec} = f(R_g)$



With an inductive load at
 $V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $I_c = 600$ A $T_f = 150^\circ\text{C}$



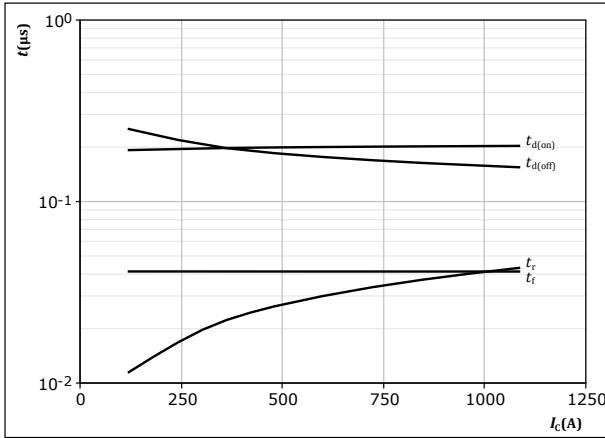
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AC 1 Switching Characteristics H

figure 35. IGBT

Typical switching times as a function of collector current
 $t = f(I_C)$

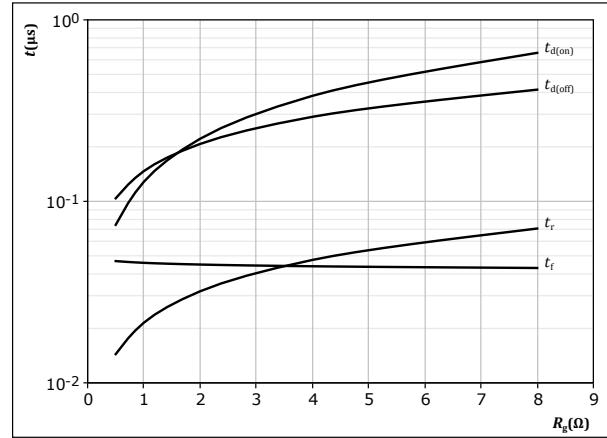


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$

figure 36. IGBT

Typical switching times as a function of gate resistor
 $t = f(R_g)$

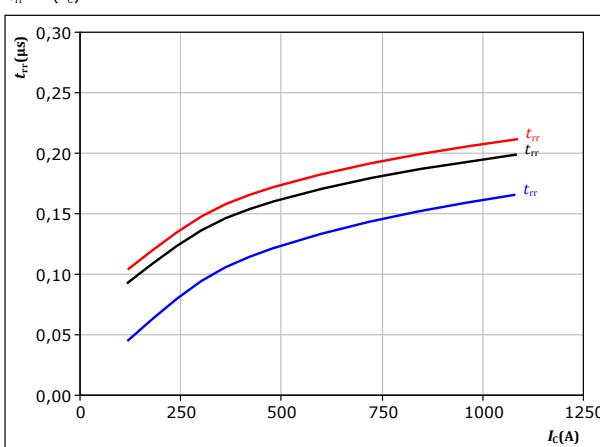


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$

figure 37. FWD

Typical reverse recovery time as a function of collector current
 $t_{rr} = f(I_C)$

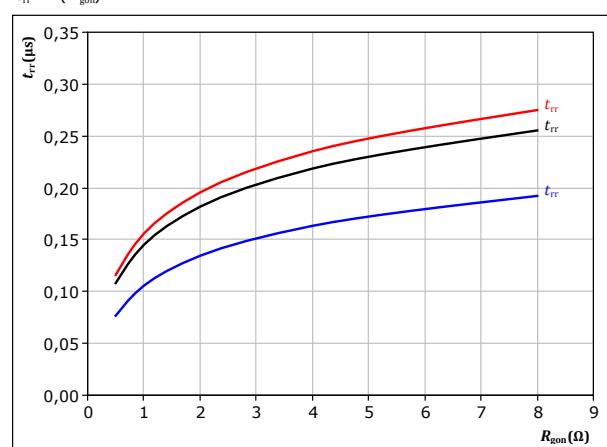


With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

figure 38. FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor
 $t_{rr} = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$



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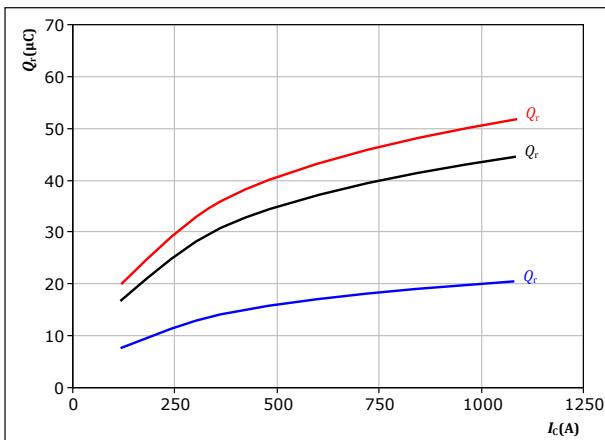
**BO-SP10FSA600S7-LM69F98T
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datasheet

AC 1 Switching Characteristics H

figure 39.

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$



With an inductive load at

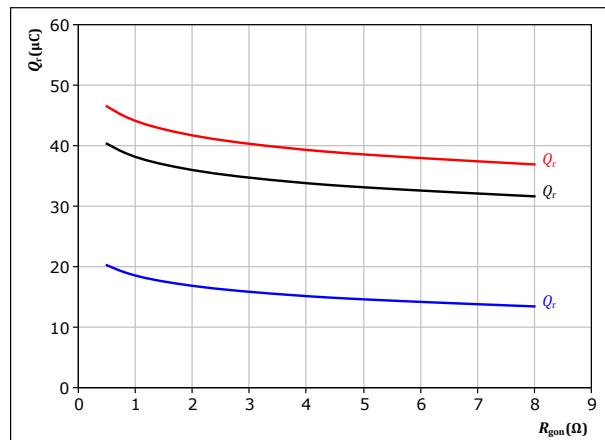
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 40.

Typical recovered charge as a function of turn on gate resistor

$$Q_r = f(R_{gon})$$



With an inductive load at

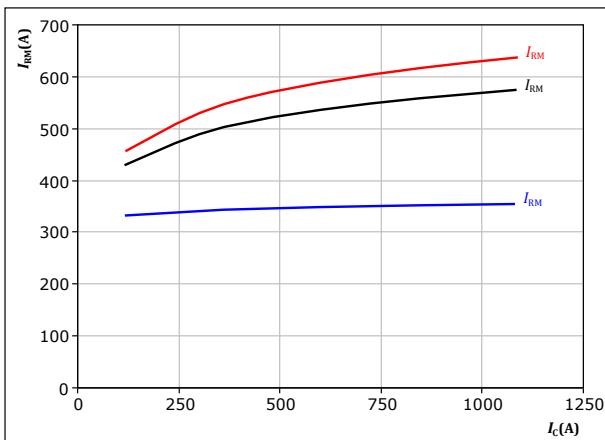
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 41.

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$



With an inductive load at

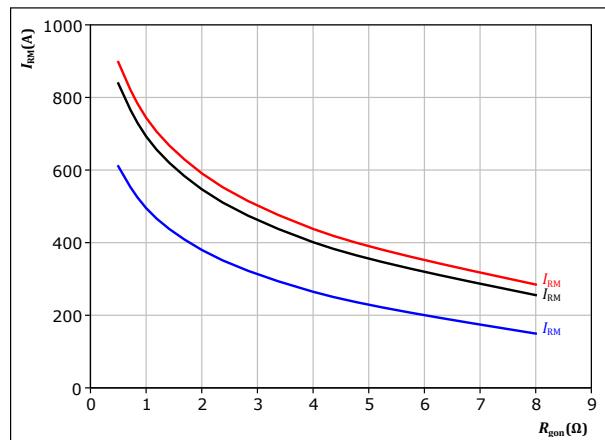
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 42.

Typical peak reverse recovery current as a function of turn on gate resistor

$$I_{RM} = f(R_{gon})$$



With an inductive load at

$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD



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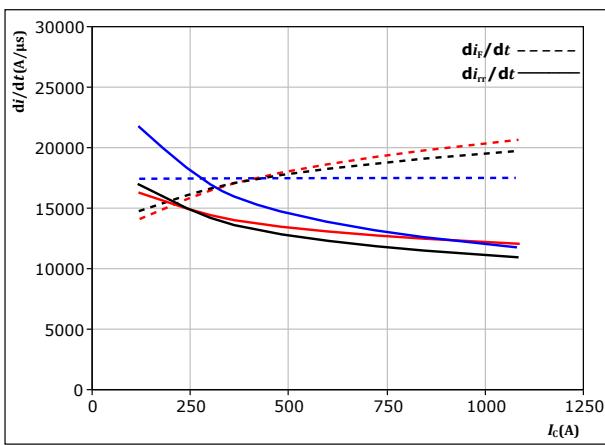
AC 1 Switching Characteristics H

figure 43.

FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current

$di_f/dt, di_{rr}/dt = f(I_c)$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

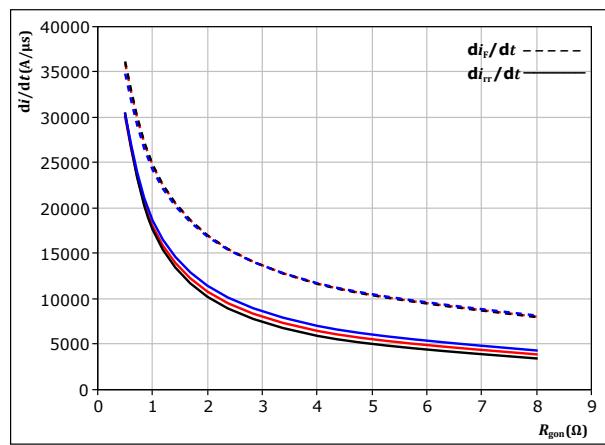
$T_j:$ — 25 °C
 — 125 °C
 — 150 °C

figure 44.

FWD

Typical rate of fall of forward and reverse recovery current as a function of turn on gate resistor

$di_f/dt, di_{rr}/dt = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_c = 600 \text{ A}$

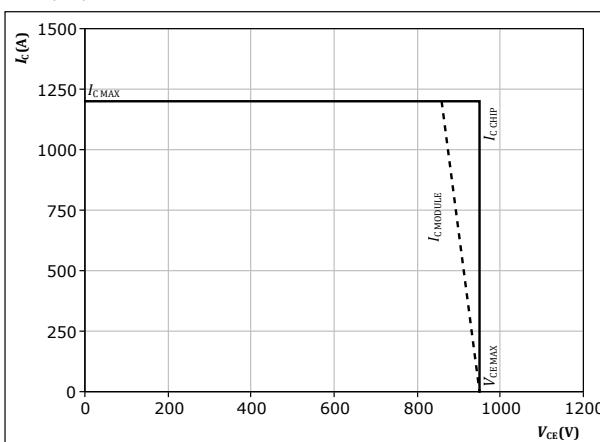
$T_j:$ — 25 °C
 — 125 °C
 — 150 °C

figure 45.

IGBT

Reverse bias safe operating area

$I_c = f(V_{CE})$



At $T_j = 150^\circ\text{C}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$



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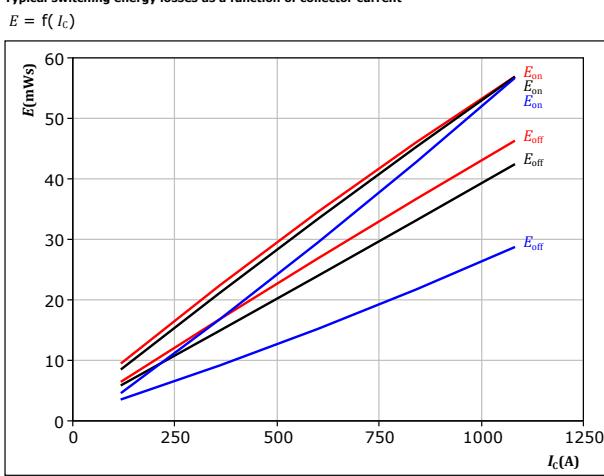
datasheet

AC 2 Switching Characteristics L

figure 16.

Typical switching energy losses as a function of collector current

IGBT



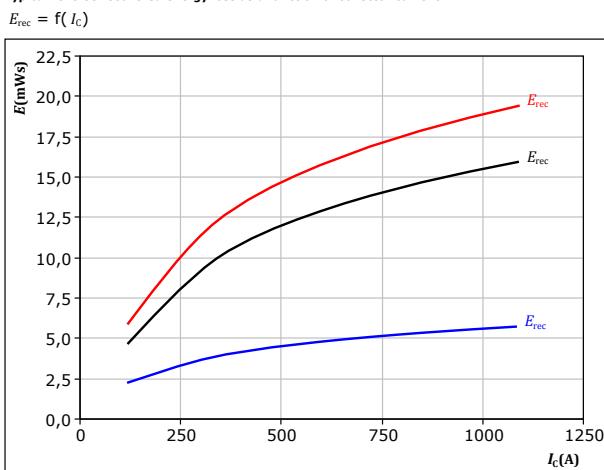
With an inductive load at

$V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $R_{gon} = 2$ Ω $T_f = 150^\circ\text{C}$
 $R_{goff} = 2$ Ω

figure 18.

Typical reverse recovered energy loss as a function of collector current

FWD



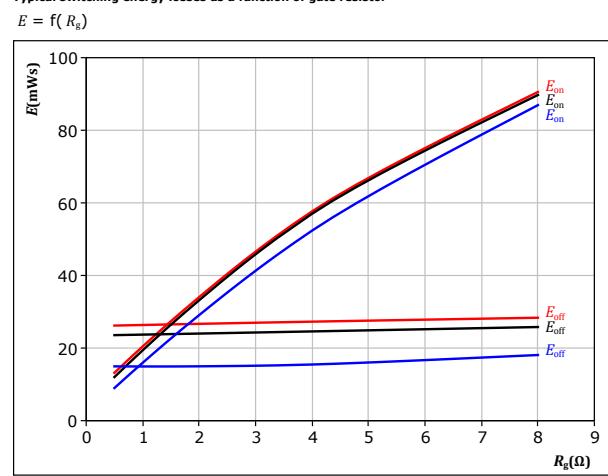
With an inductive load at

$V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $R_{gon} = 2$ Ω $T_f = 150^\circ\text{C}$

figure 17.

Typical switching energy losses as a function of gate resistor

IGBT



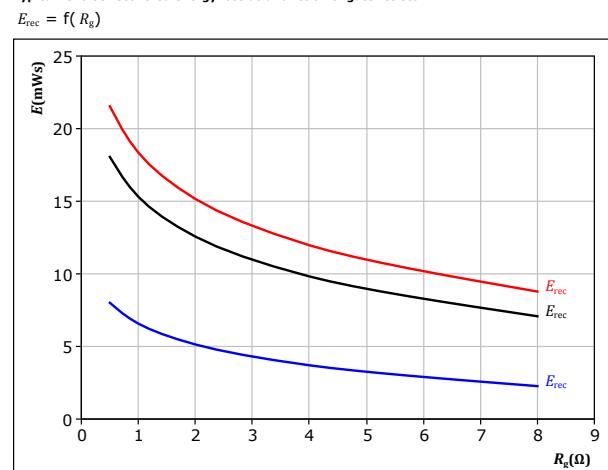
With an inductive load at

$V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $I_c = 600$ A $T_f = 150^\circ\text{C}$

figure 19.

Typical reverse recovered energy loss as a function of gate resistor

FWD



With an inductive load at

$V_{CE} = 600$ V $T_f = 25^\circ\text{C}$
 $V_{GE} = \pm 15$ V $T_f = 125^\circ\text{C}$
 $I_c = 600$ A $T_f = 150^\circ\text{C}$



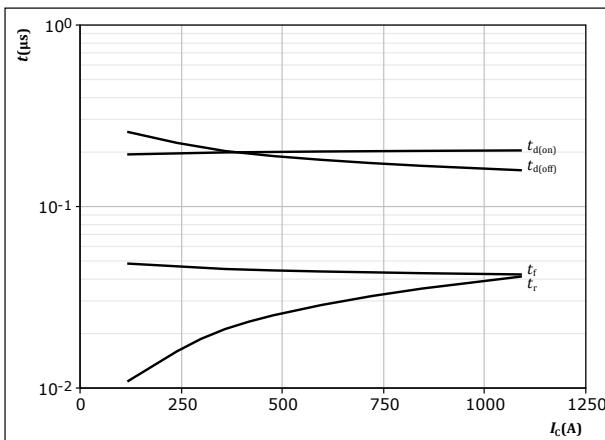
Vincotech

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datasheet

AC 2 Switching Characteristics L

figure 20.

Typical switching times as a function of collector current
 $t = f(I_C)$



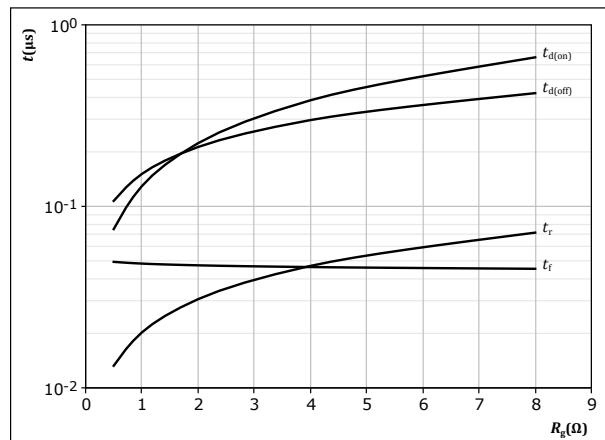
With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$

IGBT

figure 21.

Typical switching times as a function of gate resistor
 $t = f(R_g)$



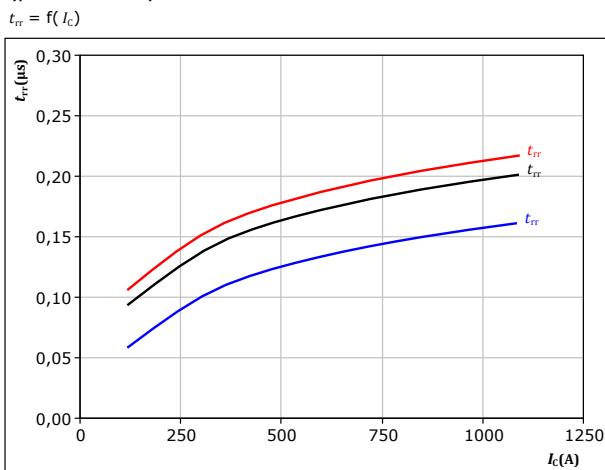
With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$

IGBT

figure 22.

Typical reverse recovery time as a function of collector current
 $t_{rr} = f(I_C)$



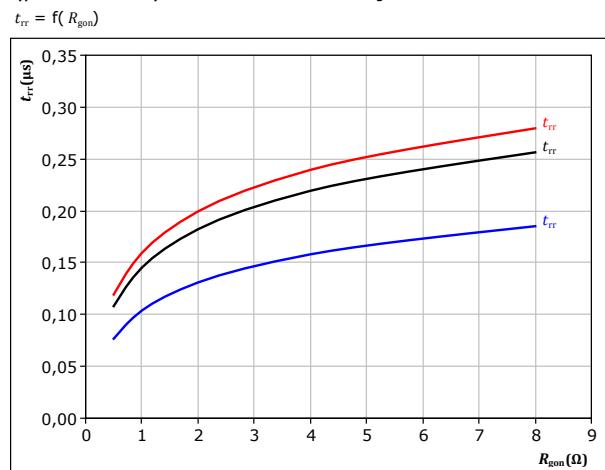
With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

FWD

figure 23.

Typical reverse recovery time as a function of IGBT turn on gate resistor
 $t_{rr} = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$

FWD



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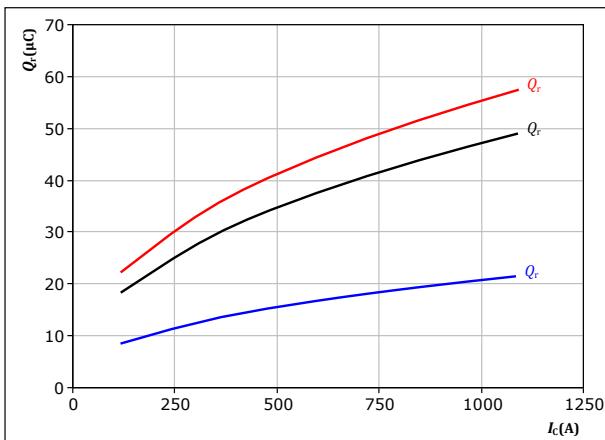
**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**
datasheet

AC 2 Switching Characteristics L

figure 24.

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$



With an inductive load at

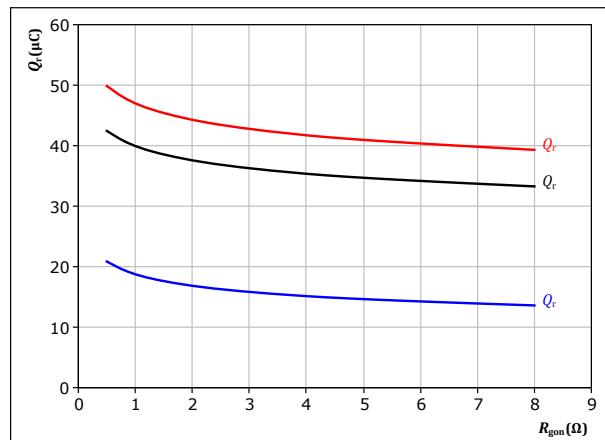
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 25.

Typical recovered charge as a function of turn on gate resistor

$$Q_r = f(R_{gon})$$



With an inductive load at

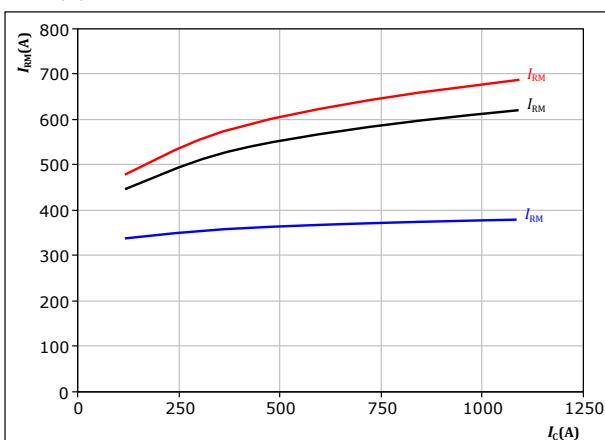
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 26.

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$



With an inductive load at

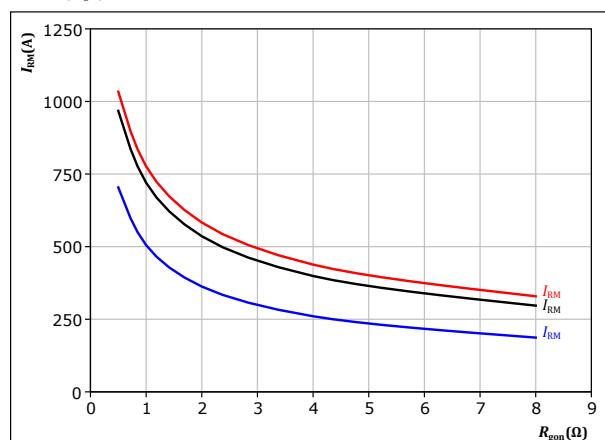
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 27.

Typical peak reverse recovery current as a function of turn on gate resistor

$$I_{RM} = f(R_{gon})$$



With an inductive load at

$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD



Vincotech

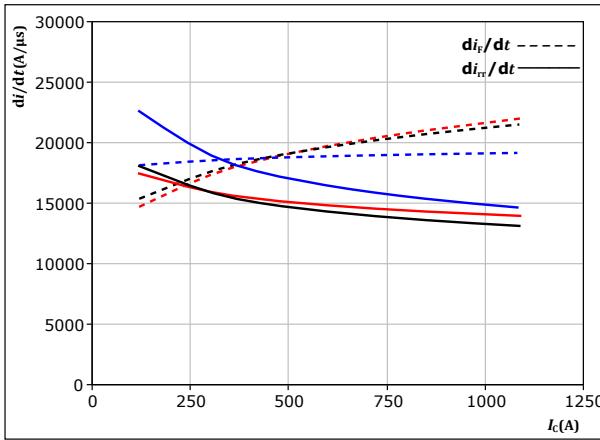
**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**
datasheet

AC 2 Switching Characteristics L

figure 28. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current

$di_f/dt, di_{rr}/dt = f(I_c)$



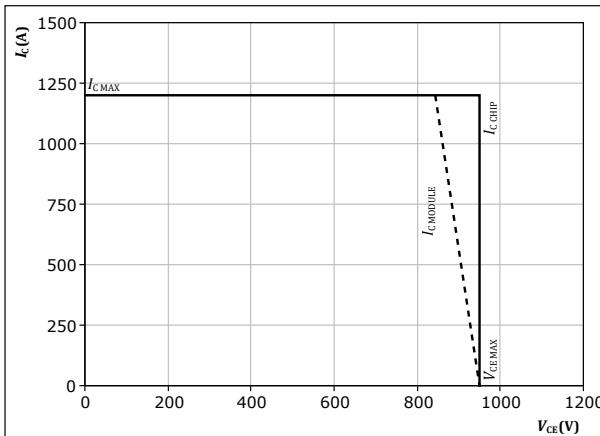
With an inductive load at

$V_{CE} =$	600	V	$T_j =$	25 °C
$V_{GE} =$	± 15	V		125 °C
$R_{gon} =$	2	Ω		150 °C

figure 30. IGBT

Reverse bias safe operating area

$I_c = f(V_{CE})$



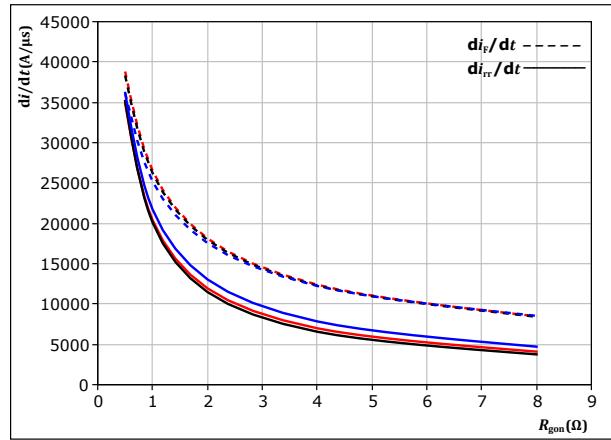
At $T_j = 150$ °C

$R_{gon} =$	2	Ω
$R_{goff} =$	2	Ω

figure 29. FWD

Typical rate of fall of forward and reverse recovery current as a function of turn on gate resistor

$di_f/dt, di_{rr}/dt = f(R_{gon})$



With an inductive load at

$V_{CE} =$	600	V	$T_j =$	25 °C
$V_{GE} =$	± 15	V		125 °C
$I_c =$	600	A		150 °C



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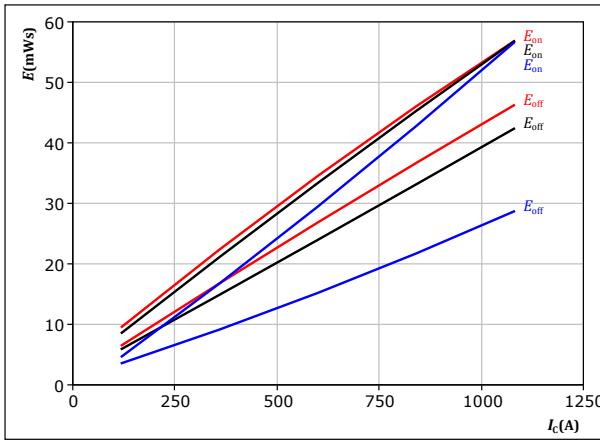
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datasheet

AC 2 Switching Characteristics H

figure 31. IGBT

Typical switching energy losses as a function of collector current

$$E = f(I_c)$$



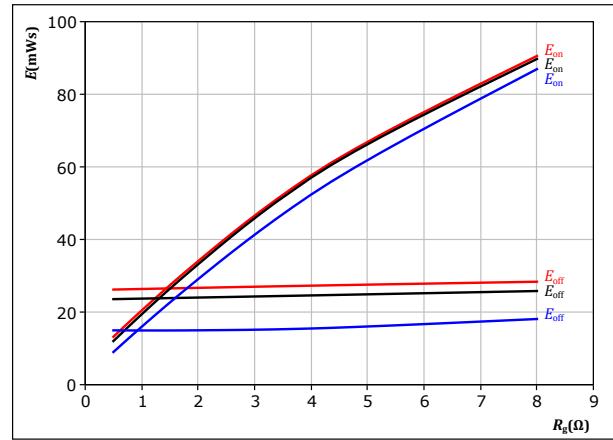
With an inductive load at

V _{CE} =	600	V	T _f :	25 °C
V _{GE} =	±15	V		125 °C
R _{gon} =	2	Ω		150 °C
R _{goff} =	2	Ω		

figure 32. IGBT

Typical switching energy losses as a function of gate resistor

$$E = f(R_g)$$



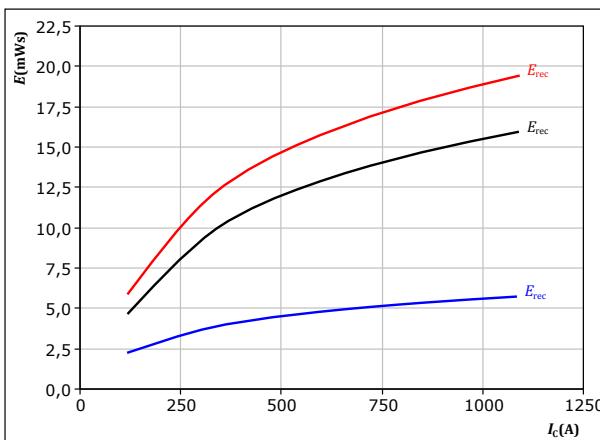
With an inductive load at

V _{CE} =	600	V	T _f :	25 °C
V _{GE} =	±15	V		125 °C
I _c =	600	A		150 °C

figure 33. FWD

Typical reverse recovered energy loss as a function of collector current

$$E_{rec} = f(I_c)$$



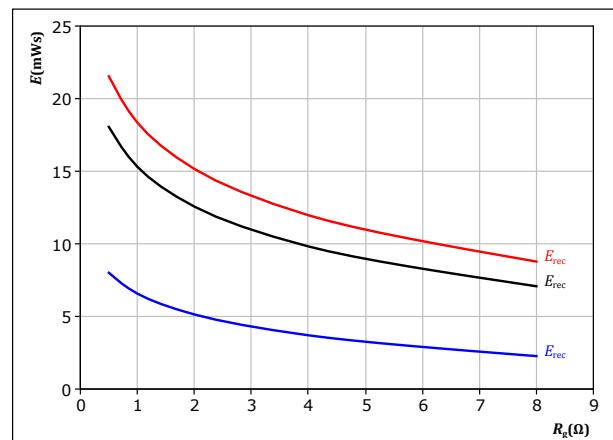
With an inductive load at

V _{CE} =	600	V	T _f :	25 °C
V _{GE} =	±15	V		125 °C
R _{gon} =	2	Ω		150 °C

figure 34. FWD

Typical reverse recovered energy loss as a function of gate resistor

$$E_{rec} = f(R_g)$$



With an inductive load at

V _{CE} =	600	V	T _f :	25 °C
V _{GE} =	±15	V		125 °C
I _c =	600	A		150 °C



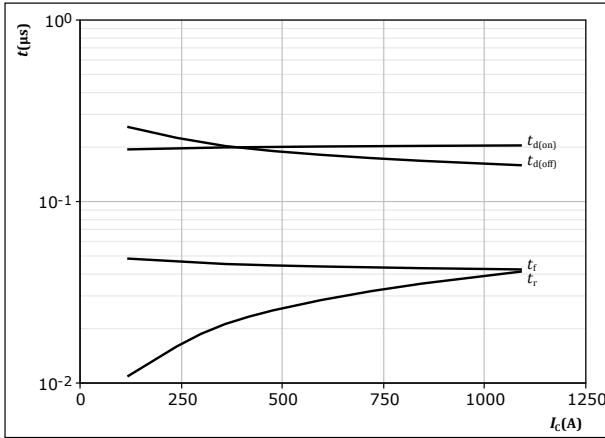
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datasheet

AC 2 Switching Characteristics H

figure 35. IGBT

Typical switching times as a function of collector current
 $t = f(I_C)$

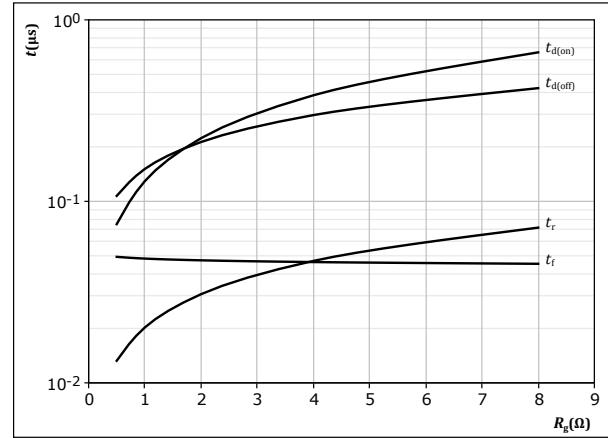


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$
 $R_{goff} = 2 \Omega$

figure 36. IGBT

Typical switching times as a function of gate resistor
 $t = f(R_g)$

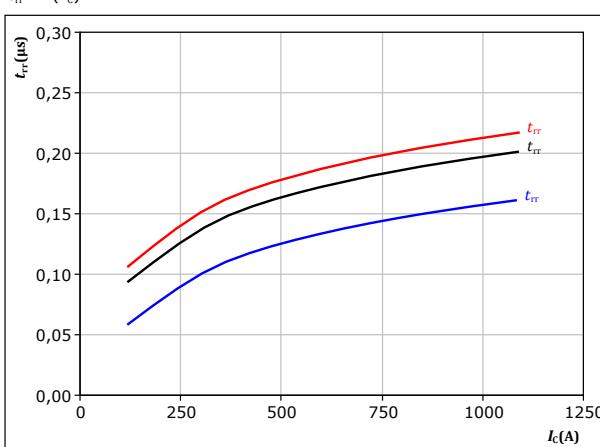


With an inductive load at

$T_j = 150^\circ\text{C}$
 $V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$

figure 37. FWD

Typical reverse recovery time as a function of collector current
 $t_{rr} = f(I_C)$

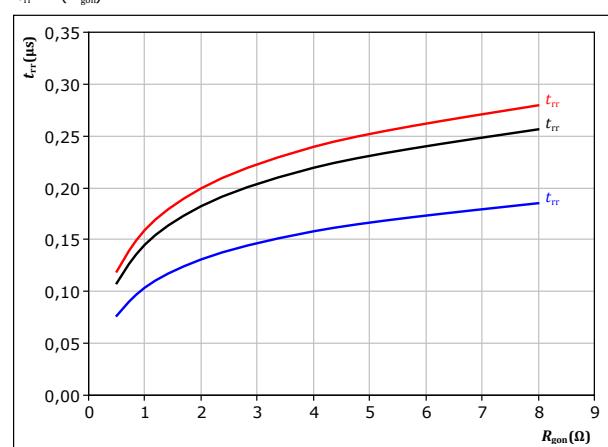


With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $R_{gon} = 2 \Omega$

figure 38. FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor
 $t_{rr} = f(R_{gon})$



With an inductive load at

$V_{CE} = 600 \text{ V}$
 $V_{GE} = \pm 15 \text{ V}$
 $I_C = 600 \text{ A}$



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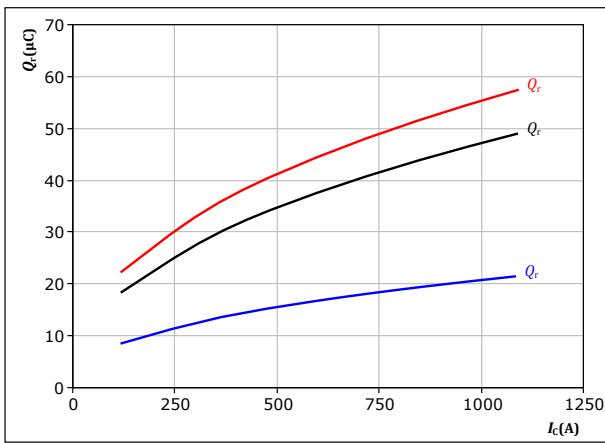
**BO-SP10FSA600S7-LM69F98T
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datasheet

AC 2 Switching Characteristics H

figure 39.

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$



With an inductive load at

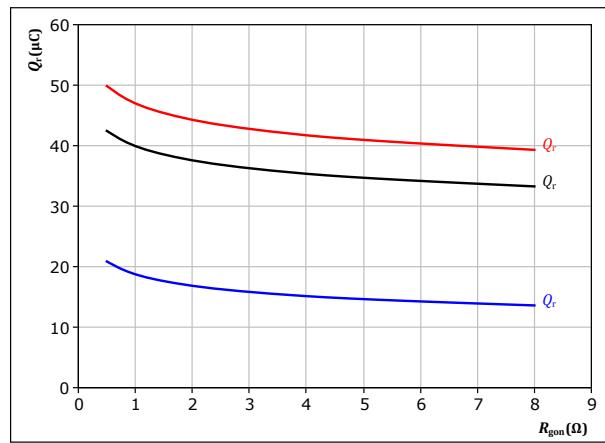
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 40.

Typical recovered charge as a function of turn on gate resistor

$$Q_r = f(R_{gon})$$



With an inductive load at

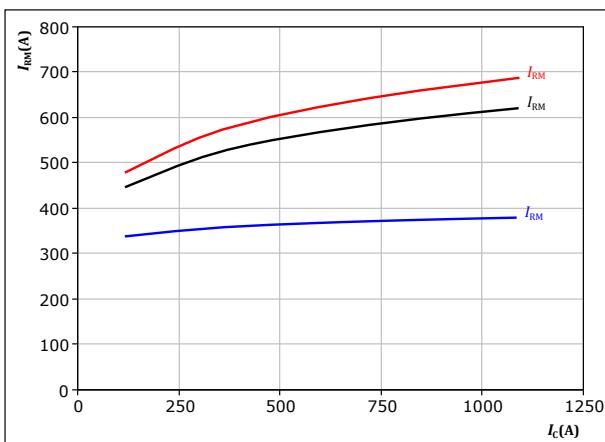
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 41.

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$



With an inductive load at

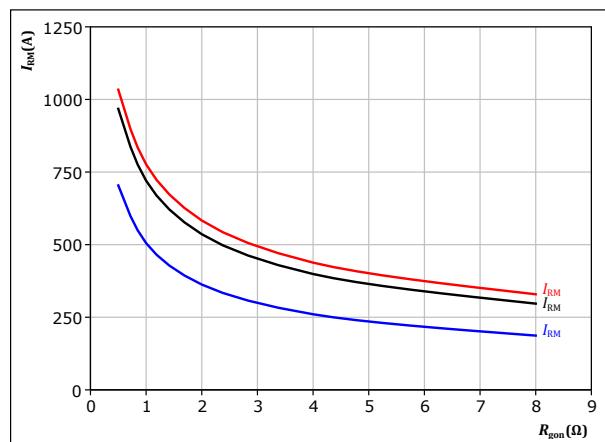
$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ R_{gon} &= 2 \Omega & & 150^\circ\text{C} \end{aligned}$$

FWD

figure 42.

Typical peak reverse recovery current as a function of turn on gate resistor

$$I_{RM} = f(R_{gon})$$



With an inductive load at

$$\begin{aligned} V_{CE} &= 600 \text{ V} & T_f: & 25^\circ\text{C} \\ V_{GE} &= \pm 15 \text{ V} & & 125^\circ\text{C} \\ I_c &= 600 \text{ A} & & 150^\circ\text{C} \end{aligned}$$

FWD



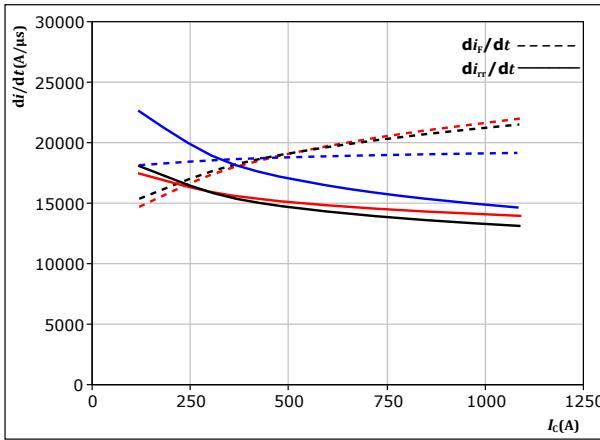
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datasheet

AC 2 Switching Characteristics H

figure 43. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current
 $di_f/dt, di_{rr}/dt = f(I_c)$

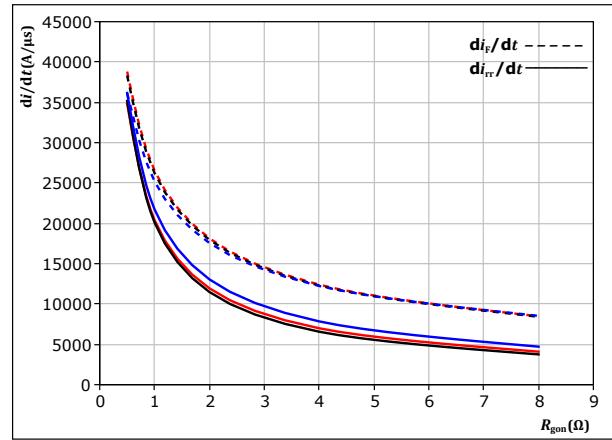


With an inductive load at

$V_{CE} =$	600	V	$T_j =$	25 °C
$V_{GE} =$	± 15	V		125 °C
$R_{gon} =$	2	Ω		150 °C

figure 44. FWD

Typical rate of fall of forward and reverse recovery current as a function of turn on gate resistor
 $di_f/dt, di_{rr}/dt = f(R_{gon})$



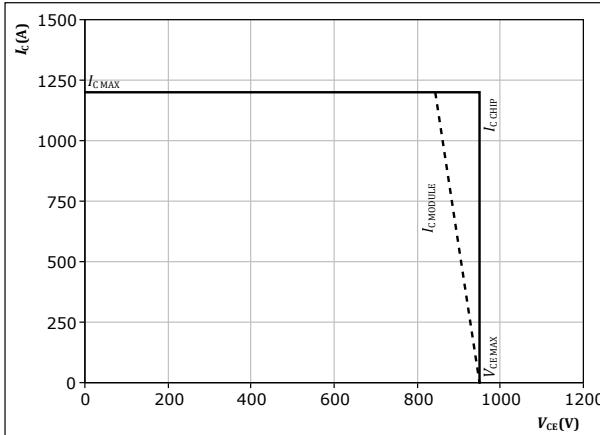
With an inductive load at

$V_{CE} =$	600	V	$T_j =$	25 °C
$V_{GE} =$	± 15	V		125 °C
$I_c =$	600	A		150 °C

figure 45. IGBT

Reverse bias safe operating area

$I_c = f(V_{CE})$



At $T_j = 150$ °C
 $R_{gon} = 2$ Ω
 $R_{goff} = 2$ Ω



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datasheet

Switching Definitions

figure 46. IGBT

Turn-off Switching Waveforms & definition of t_{doff} , t_{Eoff} (t_{Eoff} = integrating time for E_{off})

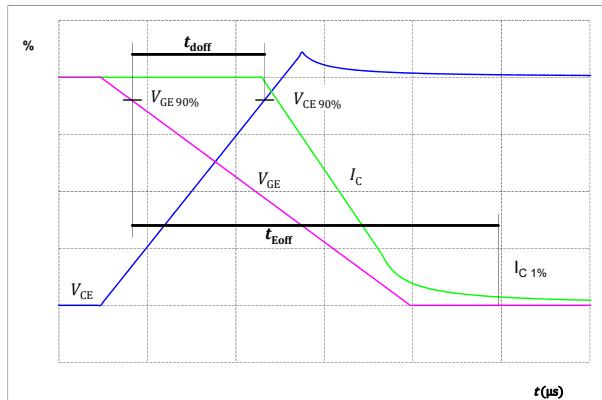


figure 48. IGBT

Turn-off Switching Waveforms & definition of t_f

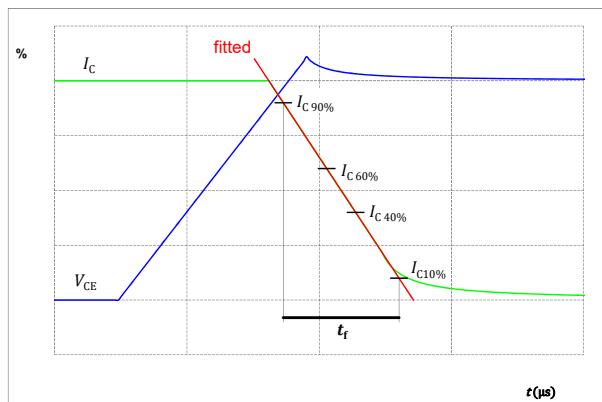


figure 47. IGBT

Turn-on Switching Waveforms & definition of t_{don} , t_{Eon} (t_{Eon} = integrating time for E_{on})

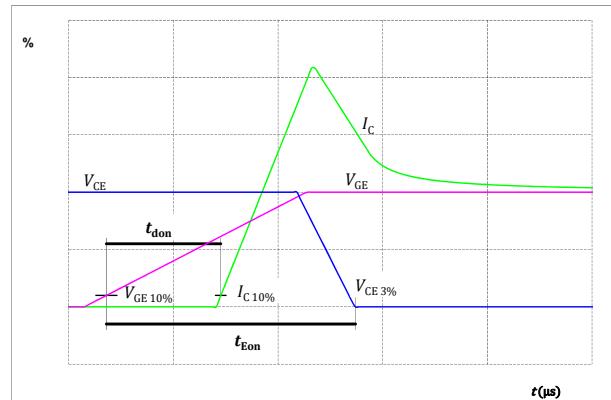
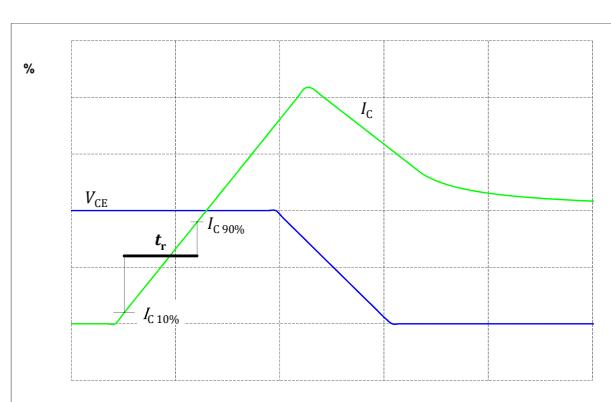


figure 49. IGBT

Turn-on Switching Waveforms & definition of t_r





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B0-SP10FSB600S7-LM79F98T**

datasheet

Switching Definitions

figure 50.

Turn-off Switching Waveforms & definition of t_{tr}

FWD

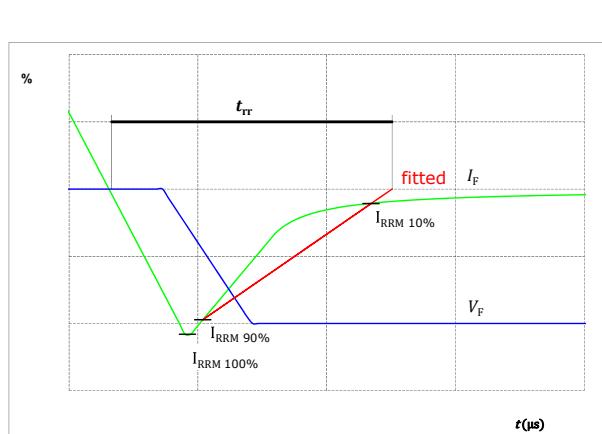
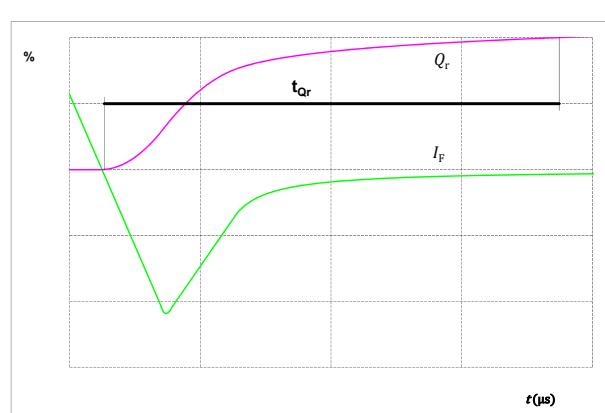


figure 51.

Turn-on Switching Waveforms & definition of t_{qr} (t_{qr} = integrating time for Q_r)

FWD





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**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**

datasheet

Ordering Code

Version	Ordering Code
With thermal paste	BO-SP10FSA600S7-LM69F98T-/7/

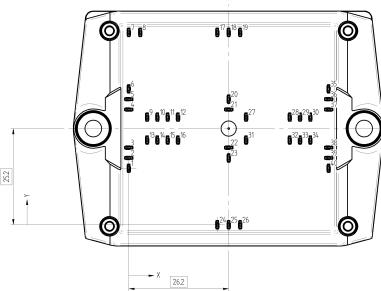
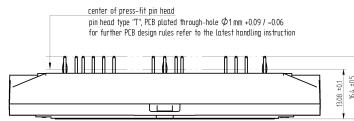
Marking

Text	Name		Date code	Logo	Lot	Serial
	NN-NNNNNNNNNNNNNN	TTTTTTVV	WWYY	VIN	LLLLL	SSSS
Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTTTVV	LLLLL	SSSS	WWYY		

BO-SP10FSA600S7-LM69F98T

Outline

Pin table [mm]			
Pin	X	Y	Function
1	0	14,8	DC-
2	0	17,5	DC-
3	0	20,2	DC-
4	0	30,2	DC+
5	0	32,9	DC+
6	0	35,6	DC+
7	0	50,4	Therm1
8	3	50,4	Therm2
9	4,8	28,2	C+
10	7,5	28,2	C+
11	10,2	28,2	C+
12	12,9	28,2	C+
13	4,8	22,2	C-
14	7,5	22,2	C-
15	10,2	22,2	C-
16	12,9	22,2	C-
17	23,2	50,4	G11-a
18	26,2	50,4	S11
19	29,2	50,4	G11-b
20	26,2	32,9	DC+
21	26,2	30,2	DC+
22	26,2	20,2	DC-
23	26,2	17,5	DC-
24	23,2	0	G12-a
25	26,2	0	S12
26	29,2	0	G12-b
27	30,75	28,2	C+
28	42,2	28,2	C+
29	44,9	28,2	C+
30	47,6	28,2	C+
31	30,75	22,2	C-
32	42,2	22,2	C-
33	44,9	22,2	C-
34	47,6	22,2	C-
35	52,4	35,6	DC+
36	52,4	32,9	DC+
37	52,4	30,2	DC+
38	52,4	20,2	DC-
39	52,4	17,5	DC-
40	52,4	14,8	DC-



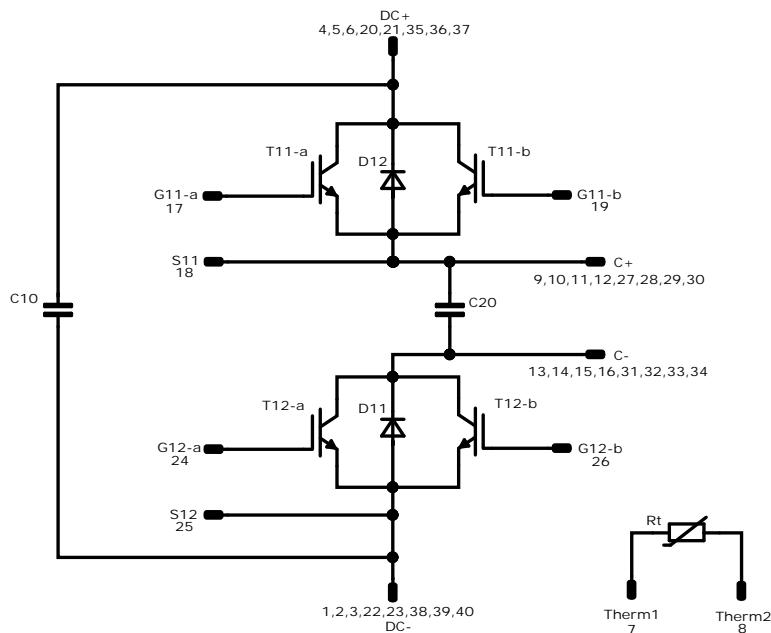
Tolerance of dimensions: +/-0.05 mm at the end of pins
(dimension of coordinate pins is only offset without tolerance)



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**BO-SP10FSA600S7-LM69F98T
BO-SP10FSB600S7-LM79F98T**

datasheet

BO-SP10FSA600S7-LM69F98T**Pinout****Identification**

ID	Component	Voltage	Current	Function	Comment
T12	IGBT	950 V	600 A	AC 1 Switch L	Parallel devices with separate control. Values apply to complete device.
D11	FWD	950 V	600 A	AC 1 Diode L	
T11	IGBT	950 V	600 A	AC 1 Switch H	Parallel devices with separate control. Values apply to complete device.
D12	FWD	950 V	600 A	AC 1 Diode H	
C20	Capacitor	1000 V		Flying Capacitor	
C10	Capacitor	1500 V		Capacitor (DC)	
R _t	Thermistor			Thermistor	



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**B0-SP10FSA600S7-LM69F98T
B0-SP10FSB600S7-LM79F98T**

datasheet

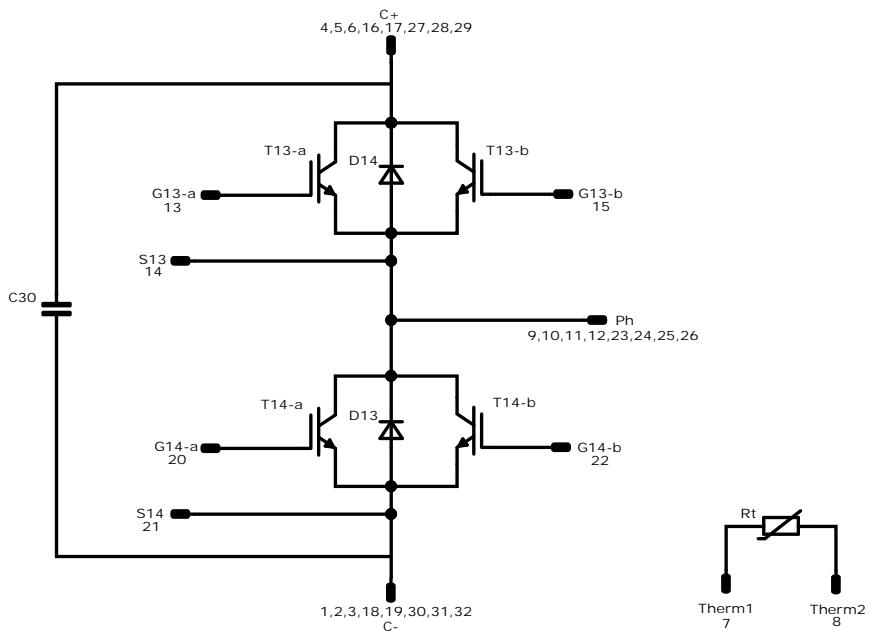
Ordering Code							
Version			Ordering Code				
With thermal paste				B0-SP10FSB600S7-LM79F98T-/7/			
Marking							
 	Text	Name	Date code	Logo	Lot	Serial	
		NN-NNNNNNNNNNNNN- TTTTTTVV	WWYY	VIN	LLLLL	SSSS	
 	Datamatrix	Type&Ver	Lot number	Serial	Date code		
		TTTTTTVV	LLLLL	SSSS	WWYY		
B0-SP10FSB600S7-LM79F98T							
Outline							
Pin table [mm]		<p>center of press-fit pin head pin head type "T", PCB plated through-hole Ø1mm +0.09 / -0.06 for further PCB design rules refer to the latest handling instruction</p>					
Pin	X	Y	Function				
1	0	16,8	C-				
2	0	19,5	C-				
3	0	22,2	C-				
4	0	28,2	C+				
5	0	30,9	C+				
6	0	33,6	C+				
7	0	50,4	Therm1				
8	3	50,4	Therm2				
9	11,5	26,35	Ph				
10	14,22	26,35	Ph				
11	16,9	26,35	Ph				
12	19,62	26,35	Ph				
13	23,2	50,4	G13-a				
14	26,2	50,4	S13				
15	29,2	50,4	G13-b				
16	26,2	31,9	C+				
17	26,2	29,2	C+				
18	26,2	21,2	C-				
19	26,2	18,5	C-				
20	23,2	0	G14-a				
21	26,2	0	S14				
22	29,2	0	G14-b				
23	32,8	26,35	Ph				
24	35,5	26,35	Ph				
25	38,2	26,35	Ph				
26	40,9	26,35	Ph				
27	52,4	33,6	C+				
28	52,4	30,9	C+				
29	52,4	28,2	C+				
30	52,4	22,2	C-				
31	52,4	19,5	C-				
32	52,4	16,8	C-				



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**B0-SP10FSA600S7-LM69F98T
B0-SP10FSB600S7-LM79F98T**

datasheet

B0-SP10FSB600S7-LM79F98T**Pinout****Identification**

ID	Component	Voltage	Current	Function	Comment
T16	IGBT	950 V	600 A	AC 2 Switch L	Parallel devices with separate control. Values apply to complete device.
D13	FWD	950 V	600 A	AC 2 Diode L	
T13	IGBT	950 V	600 A	AC 2 Switch H	Parallel devices with separate control. Values apply to complete device.
D14	FWD	950 V	600 A	AC 2 Diode H	
C30	Capacitor	1000 V		Flying Capacitor	
Rt	Thermistor			Thermistor	



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**B0-SP10FSA600S7-LM69F98T
B0-SP10FSB600S7-LM79F98T**

datasheet

Packaging instruction

Standard packaging quantity (SPQ) 45	>SPQ	Standard	<SPQ	Sample
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Handling instruction

Handling instructions for flow S3 packages see vincotech.com website.

Package data

Package data for flow S3 packages see vincotech.com website.

Vincotech thermistor reference

See Vincotech thermistor reference table at vincotech.com website.

UL recognition and file number

Certification pending. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
B0-SP10FSx600S7-LMx9F98T-D1-14	29 Jan. 2021		

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.