B0-SP10FCA200S701-LM87F98T
datasheet

***flow*FC S3** | **950 V / 200 A**

Features

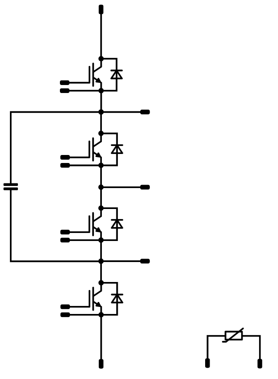
- High efficient flying capacitor topology
- Optimized for 1500 Vdc applications
- Low inductive package
- Enhanced thermal performance

flow S3 12 mm housing

Target applications

- Solar Inverters

Schematic



Types

- B0-SP10FCA200S701-LM87F98T

Maximum Ratings

T_j = 25 °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 °C	148	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	283	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C
AC 1 Diode L					
Peak repetitive reverse voltage	V_{RRM}			1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$	T_s = 80 °C	79	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}		273	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms		390	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	197	W
Maximum junction temperature	T_{jmax}			175	°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 °C	148	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	283	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions		Value	Unit
AC 1 Diode H					
Peak repetitive reverse voltage	V_{RRM}			1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$	T_s = 80 °C	79	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}		273	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms		390	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	197	W
Maximum junction temperature	T_{jmax}			175	°C
AC 2 Switch L					
Collector-emitter voltage	V_{CES}			950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$	T_s = 80 °C	148	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	283	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C
AC 2 Diode L					
Peak repetitive reverse voltage	V_{RRM}			1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$	T_s = 80 °C	79	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}		273	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms		390	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	197	W
Maximum junction temperature	T_{jmax}			175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions		Value	Unit
AC 2 Switch H					
Collector-emitter voltage	V_{CES}			950	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$	T_s = 80 °C	148	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	283	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C
AC 2 Diode H					
Peak repetitive reverse voltage	V_{RRM}			1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$	T_s = 80 °C	79	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}		273	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms		390	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	197	W
Maximum junction temperature	T_{jmax}			175	°C
Flying Capacitor					
Maximum DC voltage	V_{MAX}			1000	V
Operation Temperature	T_{op}			-55 … 125	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions		Value	Unit
Module Properties					
Thermal Properties					
Storage temperature	T_{stg}			-40…+125	°C
Operation temperature under switching condition	T_{jop}			-40…+(T_{jmax} - 25)	°C
Isolation Properties					
Isolation voltage	V_{isol}	DC Test Voltage*	t_p = 2 s	6000	V
Isolation voltage	V_{isol}	AC Voltage	t_p = 1 min	2500	V
Creepage distance				>12,7	mm
Clearance				>12,7	mm
Comparative Tracking Index	CTI			≥ 600	

*100 % tested in production

Characteristic Values

Parameter	Symbol	Conditions	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	Unit
AC 1 Switch L										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,00334	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 150		1,83 2,06 2,11	2,35(1)	V
Collector-emitter cut-off current	I_{CES}		0	950		25			4	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							0,75		Ω
Input capacitance	C_{ies}	f = 100 kHz	0	25		25		13000		pF
Output capacitance	C_{oes}							278		pF
Reverse transfer capacitance	C_{res}							40		pF
Gate charge	Q_g		15		0	25		460		nC
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,34		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{gon} = 8 Ω R_{goff} = 8 Ω	0/15	600	135	25 125 150		72 66,24 64,64		ns
Rise time	t_r					25 125 150		18,88 21,44 22,4		ns
Turn-off delay time	$t_{d(off)}$					25 125 150		443,52 494,08 509,44		ns
Fall time	t_f					25 125 150		20,58 66,19 80,08		ns
Turn-on energy (per pulse)	E_{on}	Q_{rFWD}=0,343 µC Q_{rFWD}=0,349 µC Q_{rFWD}=0,347 µC				25 125 150		5,04 5,16 5,17		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		4,12 6,68 7,48		mWs

Vincotech

Characteristic Values

Parameter	Symbol	Conditions	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	Unit
AC 1 Diode L										
Static										
Forward voltage	V_F				60	25 125 150		1,5 1,86 2,01	1,8(1)	V
Reverse leakage current	I_R	V_r = 1200 V				25		105	600	µA
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,48		K/W
Dynamic										
Peak recovery current	I_{RRM}	d*i*/d*t*=8183 A/µs d*i*/d*t*=7191 A/µs d*i*/d*t*=7139 A/µs	0/15	600	135	25 125 150		48,52 46,87 46,53		A
Reverse recovery time	t_{rr}					25 125 150		14,75 15,49 15,58		ns
Recovered charge	Q_r					25 125 150		0,343 0,349 0,347		µC
Reverse recovered energy	E_{rec}					25 125 150		0,033 0,036 0,035		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		8531 8226 7968		A/µs

Characteristic Values

Parameter	Symbol	Conditions	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	Unit
AC 1 Switch H										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,00334	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 150		1,83 2,06 2,11	2,35(1)	V
Collector-emitter cut-off current	I_{CES}		0	950		25			4	μA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							0,75		Ω
Input capacitance	C_{ies}	f = 100 kHz	0	25		25		13000		pF
Output capacitance	C_{oes}							278		pF
Reverse transfer capacitance	C_{res}							40		pF
Gate charge	Q_g		15		0	25		460		nC
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,34		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{gon} = 8 Ω R_{goff} = 8 Ω	0/15	600	135	25 125 150		72 66,24 64,64		ns
Rise time	t_r					25 125 150		18,88 21,44 22,4		ns
Turn-off delay time	$t_{d(off)}$					25 125 150		443,52 494,08 509,44		ns
Fall time	t_f					25 125 150		20,58 66,19 80,08		ns
Turn-on energy (per pulse)	E_{on}	Q_{rFWD}=0,343 μC Q_{rFWD}=0,349 μC Q_{rFWD}=0,347 μC				25 125 150		5,04 5,16 5,17		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		4,12 6,68 7,48		mWs

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 H										
Static										
Forward voltage	V_F				60	25 125 150		1,5 1,86 2,01	1,8(1)	V
Reverse leakage current	I_R	V_r = 1200 V				25		105	600	µA
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,48		K/W
Dynamic										
Peak recovery current	I_{RRM}	di/dt=8183 A/µs di/dt=7191 A/µs di/dt=7139 A/µs	0/15	600	135	25 125 150		48,52 46,87 46,53		A
Reverse recovery time	t_{rr}					25 125 150		14,75 15,49 15,58		ns
Recovered charge	Q_r					25 125 150		0,343 0,349 0,347		µC
Reverse recovered energy	E_{rec}					25 125 150		0,033 0,036 0,035		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		8531 8226 7968		A/µs

Characteristic Values

Parameter	Symbol	Conditions	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	Unit
AC 2 Switch L										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,00334	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 150		1,83 2,06 2,11	2,35(1)	V
Collector-emitter cut-off current	I_{CES}		0	950		25			4	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							0,75		Ω
Input capacitance	C_{ies}	f = 100 kHz	0	25		25		13000		pF
Output capacitance	C_{oes}							278		pF
Reverse transfer capacitance	C_{res}							40		pF
Gate charge	Q_g		15		0	25		460		nC
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,34		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{gon} = 8 Ω R_{goff} = 8 Ω	0/15	600	135	25 125 150		72 66,24 64,64		ns
Rise time	t_r					25 125 150		18,88 21,44 22,4		ns
Turn-off delay time	$t_{d(off)}$					25 125 150		443,52 494,08 509,44		ns
Fall time	t_f					25 125 150		20,58 66,19 80,08		ns
Turn-on energy (per pulse)	E_{on}	Q_{rFWD}=0,343 µC Q_{rFWD}=0,349 µC Q_{rFWD}=0,347 µC				25 125 150		5,04 5,16 5,17		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		4,12 6,68 7,48		mWs

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 2 Diode L										
Static										
Forward voltage	V_F				60	25 125 150		1,5 1,86 2,01	1,8(1)	V
Reverse leakage current	I_R	V_r = 1200 V				25		105	600	µA
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,48		K/W
Dynamic										
Peak recovery current	I_{RRM}	di/dt=8183 A/µs di/dt=7191 A/µs di/dt=7139 A/µs	0/15	600	135	25 125 150		48,52 46,87 46,53		A
Reverse recovery time	t_{rr}					25 125 150		14,75 15,49 15,58		ns
Recovered charge	Q_r					25 125 150		0,343 0,349 0,347		µC
Reverse recovered energy	E_{rec}					25 125 150		0,033 0,036 0,035		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		8531 8226 7968		A/µs

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 2 Switch H										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,00334	25	4,35	5,1	5,85	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 150		1,83 2,06 2,11	2,35(1)	V
Collector-emitter cut-off current	I_{CES}		0	950		25			4	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							0,75		Ω
Input capacitance	C_{ies}	f = 100 kHz	0	25		25		13000		pF
Output capacitance	C_{oes}							278		pF
Reverse transfer capacitance	C_{res}							40		pF
Gate charge	Q_g		15		0	25		460		nC
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,34		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{gon} = 8 Ω R_{goff} = 8 Ω	0/15	600	135	25 125 150		72 66,24 64,64		ns
Rise time	t_r					25 125 150		18,88 21,44 22,4		ns
Turn-off delay time	$t_{d(off)}$					25 125 150		443,52 494,08 509,44		ns
Fall time	t_f					25 125 150		20,58 66,19 80,08		ns
Turn-on energy (per pulse)	E_{on}	Q_{rFWD}=0,343 µC Q_{rFWD}=0,349 µC Q_{rFWD}=0,347 µC				25 125 150		5,04 5,16 5,17		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		4,12 6,68 7,48		mWs

Characteristic Values

Parameter	Symbol	Conditions	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	Unit
AC 2 Diode H										
Static										
Forward voltage	V_F				60	25 125 150		1,5 1,86 2,01	1,8(1)	V
Reverse leakage current	I_R	V_r = 1200 V				25		105	600	µA
Thermal										
Thermal resistance junction to sink (2)	$R_{th(j-s)}$	λ_{paste} = 4,4 W/mK (PTM)						0,48		K/W
Dynamic										
Peak recovery current	I_{RRM}	d*i*/d*t*=8183 A/µs d*i*/d*t*=7191 A/µs d*i*/d*t*=7139 A/µs	0/15	600	135	25 125 150		48,52 46,87 46,53		A
Reverse recovery time	t_{rr}					25 125 150		14,75 15,49 15,58		ns
Recovered charge	Q_r					25 125 150		0,343 0,349 0,347		µC
Reverse recovered energy	E_{rec}					25 125 150		0,033 0,036 0,035		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		8531 8226 7968		A/µs

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		200		nF
Tolerance							-10		10	%
Dissipation factor		f = 1 kHz				25		2,5		%
Thermistor										
Static										
Rated resistance	R					25		22		kΩ
Deviation of R_{100}	$\Delta_{R/R}$	R_{100} = 1484 Ω				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	

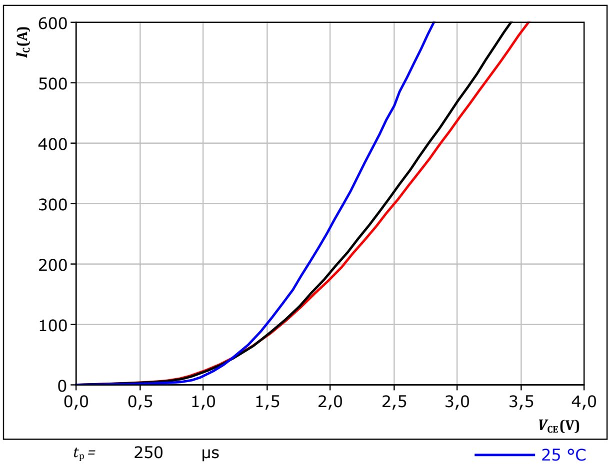
(1) Value at chip level
(2) Only valid with pre-applied Vincotech thermal interface material.

AC 1 Switch L Characteristics

figure 1. IGBT

Typical output characteristics

$I_C = f(V_{CE})$



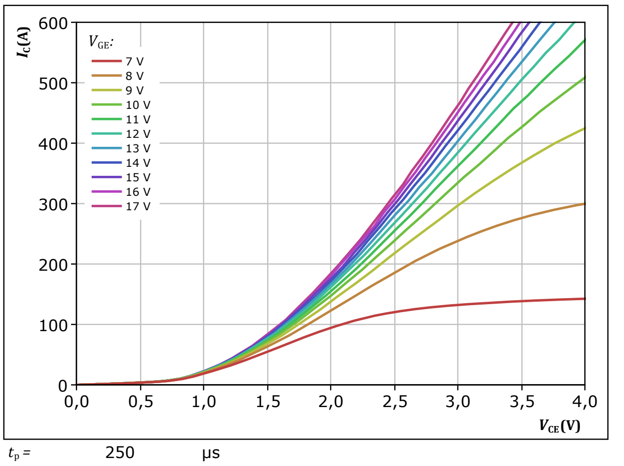
t_p =	250	μs
V_{GE} =	15	V

T_j: 25 °C, 125 °C, 150 °C

figure 2. IGBT

Typical output characteristics

$I_C = f(V_{CE})$



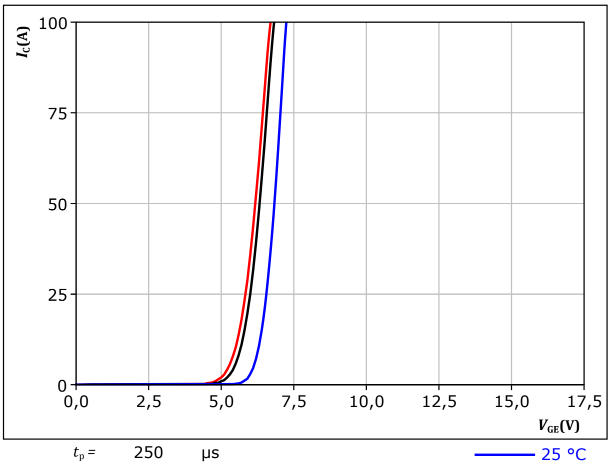
t_p =	250	μs
T_j =	150	°C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 3. IGBT

Typical transfer characteristics

$I_C = f(V_{GE})$



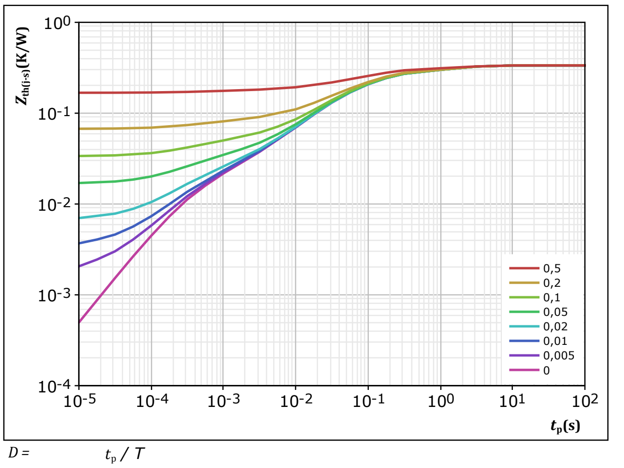
t_p =	250	μs
V_{CE} =	8	V

T_j: 25 °C, 125 °C, 150 °C

figure 4. IGBT

Transient thermal impedance as a function of pulse width

$Z_{th(j\text{-}s)} = f(t_p)$



$D = t_p / T$

$R_{th(j\text{-}s)}$ = 0,336 K/W

IGBT thermal model values

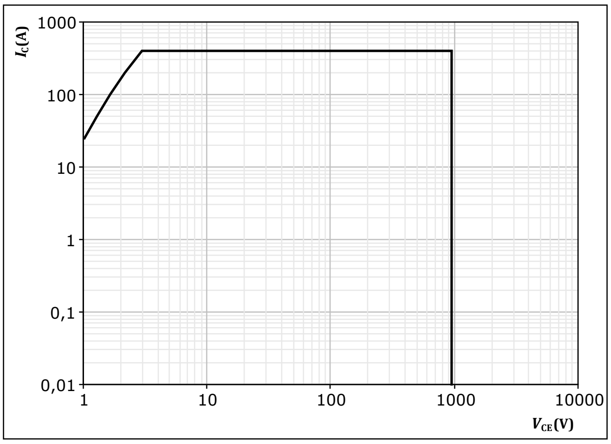
R (K/W)	τ (s)
6,56E-02	1,61E+00
1,54E-01	1,15E-01
9,21E-02	2,31E-02
1,13E-02	2,30E-03
1,31E-02	3,26E-04

AC 1 Switch L Characteristics

figure 5.	IGBT

Safe operating area

$I_C = f(V_{CE})$



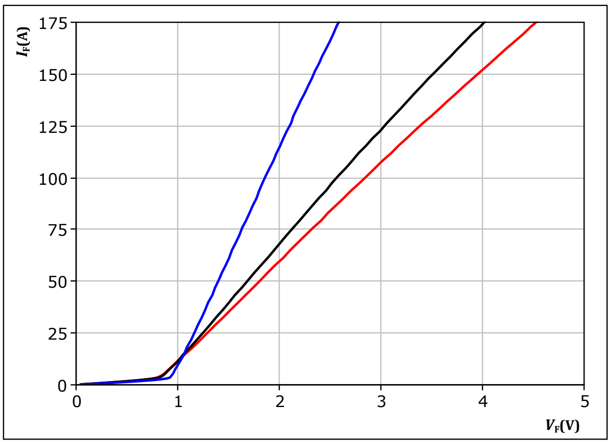
D =	single pulse	
T_s =	80	°C
V_{GE} =	15	V
T_j =	T_{jmax}	

AC 1 Diode L Characteristics

figure 6. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



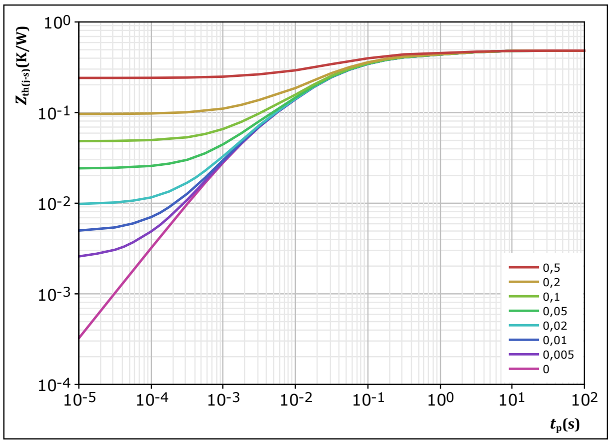
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 7. **FWD**

Transient thermal impedance as a function of pulse width

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



$D = t_p / T$

$R_{th(j-s)}$ = 0,482 K/W

FWD thermal model values

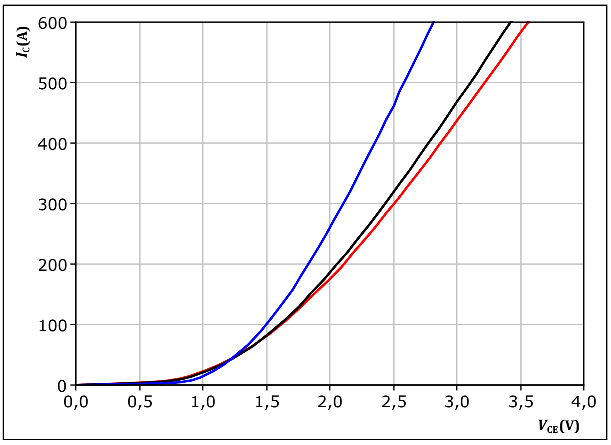
R (K/W)	τ (s)
3,66E-02	3,84E+00
5,22E-02	8,76E-01
1,74E-01	8,75E-02
1,75E-01	1,75E-02
4,55E-02	2,23E-03

AC 1 Switch H Characteristics

figure 8. IGBT

Typical output characteristics

$I_C = f(V_{CE})$

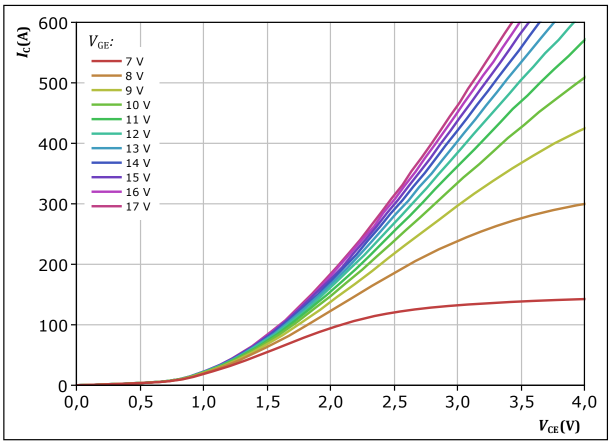


t_p =	250	µs		25 °C
V_{GE} =	15	V	T_j:	125 °C
				150 °C

figure 9. IGBT

Typical output characteristics

$I_C = f(V_{CE})$



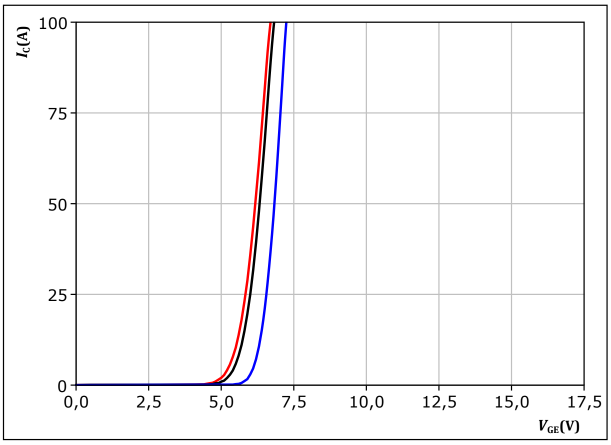
t_p =	250	µs
T_j =	150	°C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 10. IGBT

Typical transfer characteristics

$I_C = f(V_{GE})$

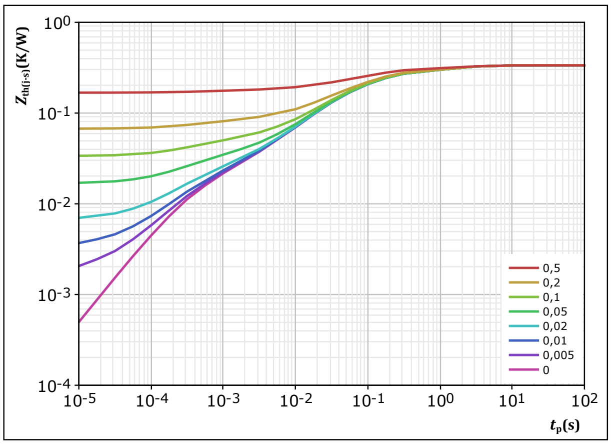


t_p =	250	µs		25 °C
V_{CE} =	8	V	T_j:	125 °C
				150 °C

figure 11. IGBT

Transient thermal impedance as a function of pulse width

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



D =	t_p / T	
$R_{th(j-s)}$ =	0,336	K/W

IGBT thermal model values

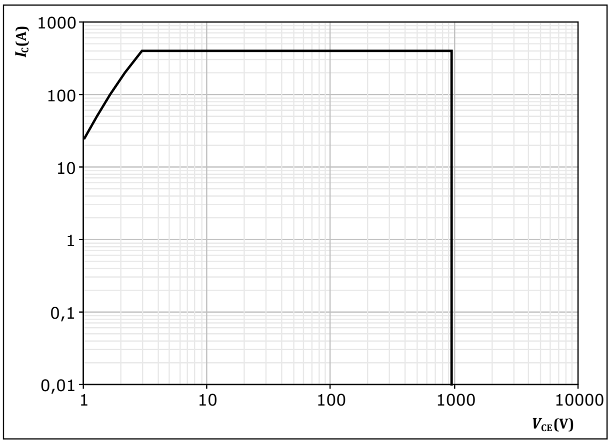
R (K/W)	τ (s)
6,56E-02	1,61E+00
1,54E-01	1,15E-01
9,21E-02	2,31E-02
1,13E-02	2,30E-03
1,31E-02	3,26E-04

AC 1 Switch H Characteristics

figure 12.	IGBT

Safe operating area

I_C = f(V_{CE})



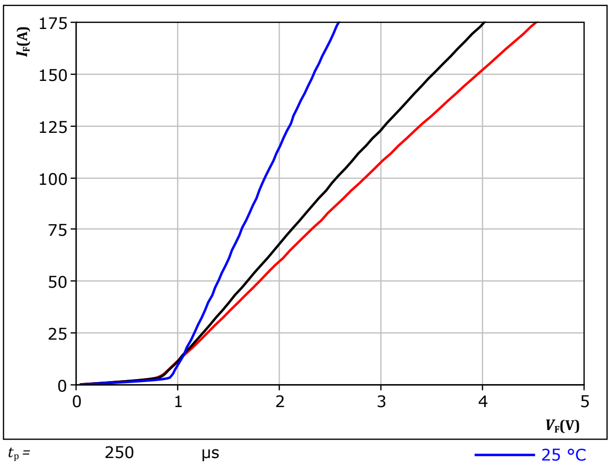
D =	single pulse	
T_s =	80	°C
V_{GE} =	15	V
T_j =	T_{jmax}	

AC 1 Diode H Characteristics

figure 13. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



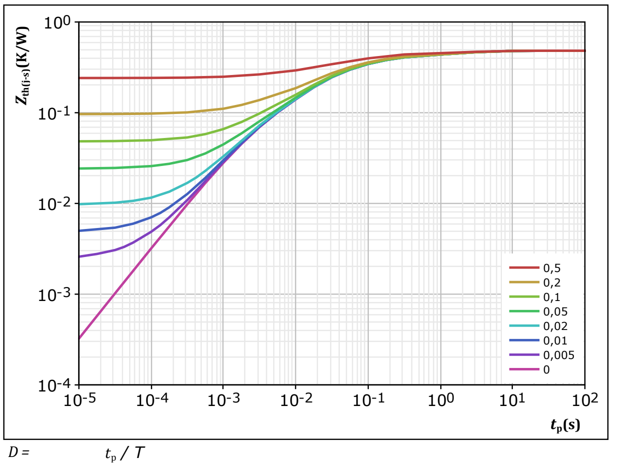
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 14. **FWD**

Transient thermal impedance as a function of pulse width

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



D = t_p / T

$R_{th(j-s)}$ = 0,482 K/W

FWD thermal model values

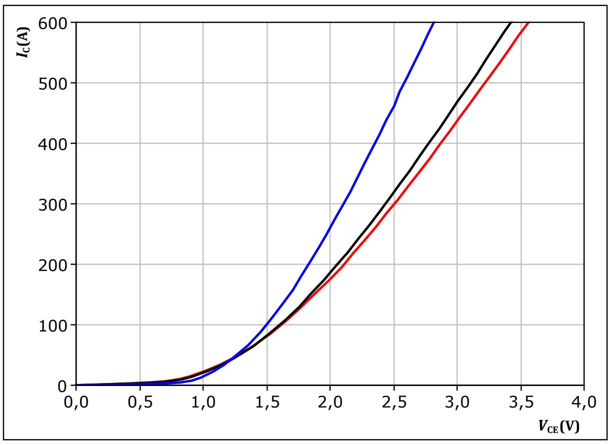
R (K/W)	τ (s)
3,66E-02	3,84E+00
5,22E-02	8,76E-01
1,74E-01	8,75E-02
1,75E-01	1,75E-02
4,55E-02	2,23E-03

AC 2 Switch L Characteristics

figure 15. **IGBT**

Typical output characteristics

I_C = f(V_{CE})

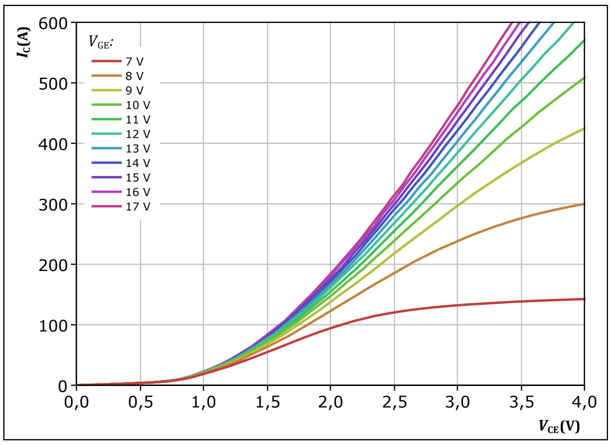


t_p =	250	μs		25 °C
V_{GE} =	15	V	T_j:	125 °C
				150 °C

figure 16. **IGBT**

Typical output characteristics

I_C = f(V_{CE})



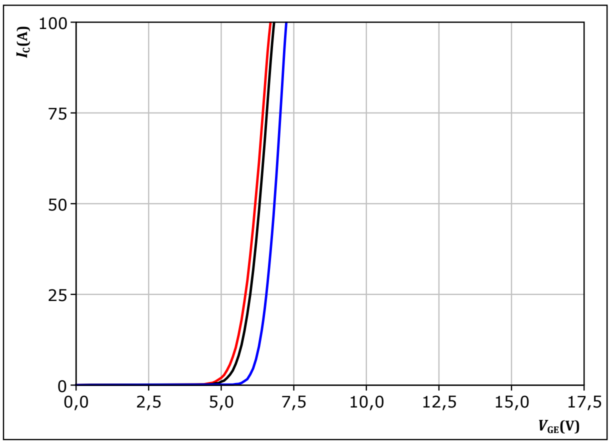
t_p =	250	μs
T_j =	150	°C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 17. **IGBT**

Typical transfer characteristics

I_C = f(V_{GE})

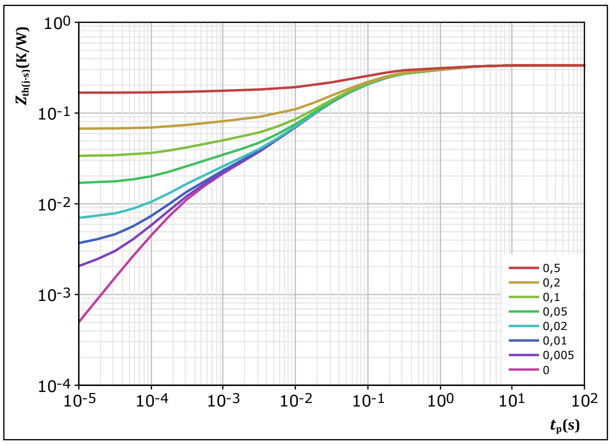


t_p =	250	μs		25 °C
V_{CE} =	8	V	T_j:	125 °C
				150 °C

figure 18. **IGBT**

Transient thermal impedance as a function of pulse width

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



D = t_p / T

$R_{th(j-s)}$ = 0,336 K/W

IGBT thermal model values

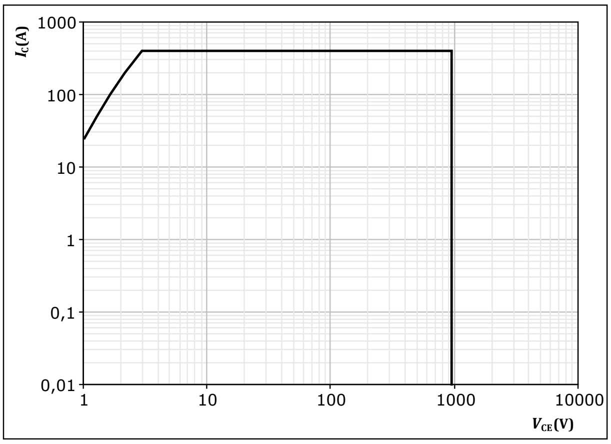
R (K/W)	τ (s)
6,56E-02	1,61E+00
1,54E-01	1,15E-01
9,21E-02	2,31E-02
1,13E-02	2,30E-03
1,31E-02	3,26E-04

AC 2 Switch L Characteristics

figure 19.	IGBT

Safe operating area

I_C = f(V_{CE})



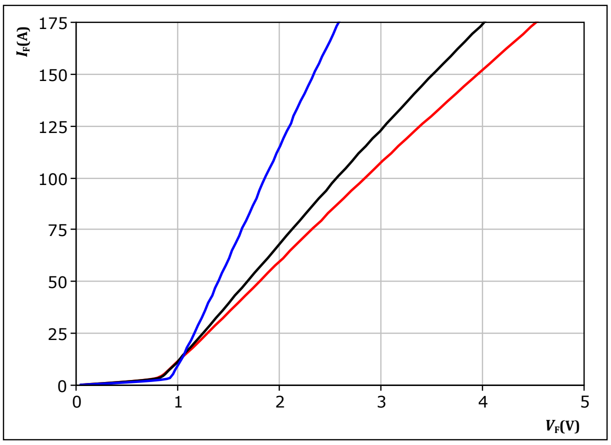
D =	single pulse	
T_s =	80	°C
V_{GE} =	15	V
T_j =	T_{jmax}	

AC 2 Diode L Characteristics

figure 20. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



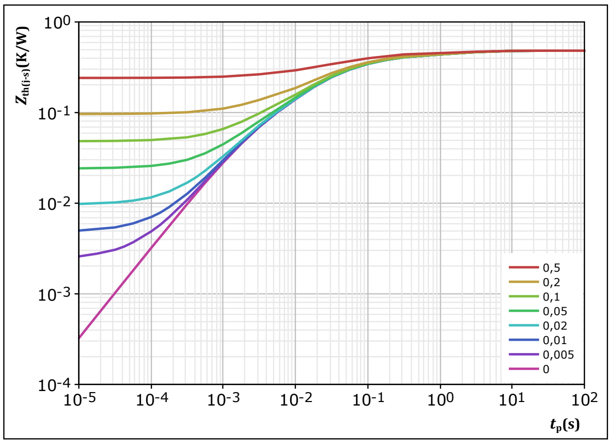
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 21. **FWD**

Transient thermal impedance as a function of pulse width

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



$D = t_p / T$

$R_{th(j-s)}$ = 0,482 K/W

FWD thermal model values

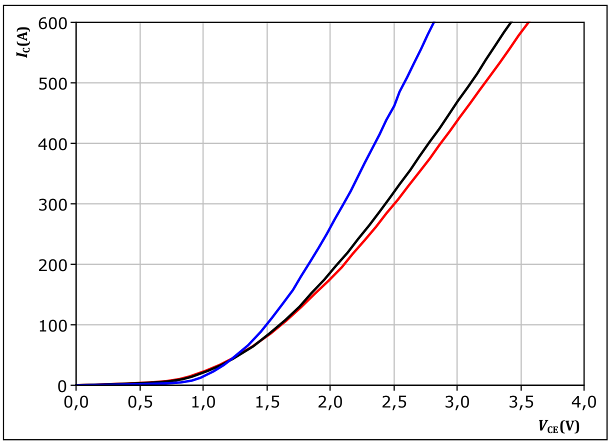
R (K/W)	τ (s)
3,66E-02	3,84E+00
5,22E-02	8,76E-01
1,74E-01	8,75E-02
1,75E-01	1,75E-02
4,55E-02	2,23E-03

AC 2 Switch H Characteristics

figure 22. IGBT

Typical output characteristics

I_C = f(V_{CE})

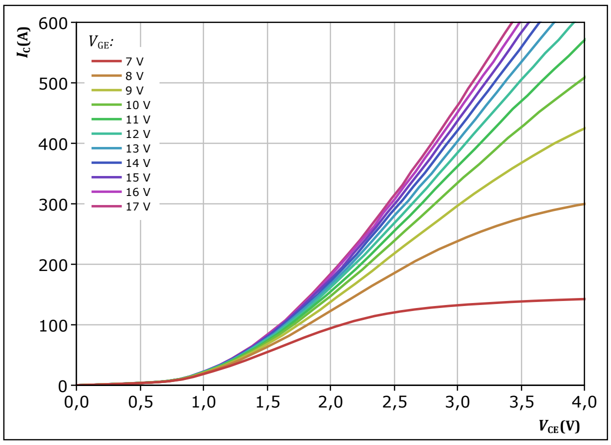


t_p =	250	µs	
V_{GE} =	15	V	
T_j:	25 °C	125 °C	150 °C

figure 23. IGBT

Typical output characteristics

I_C = f(V_{CE})



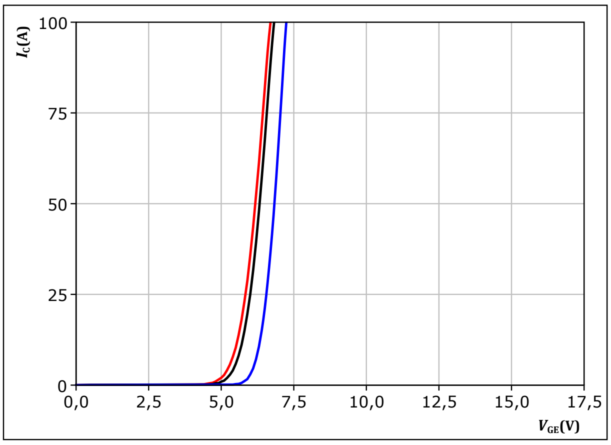
t_p =	250	µs
T_j =	150	°C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 24. IGBT

Typical transfer characteristics

I_C = f(V_{GE})

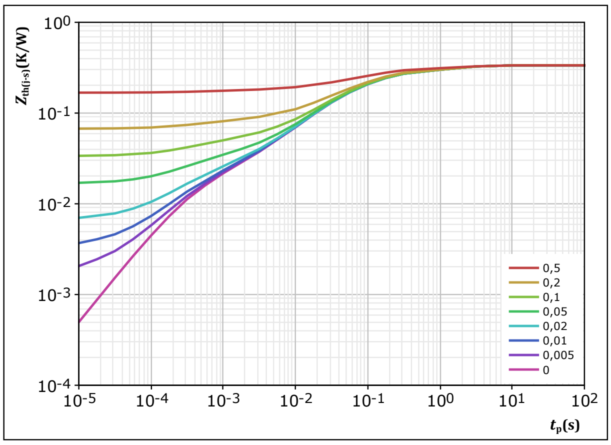


t_p =	250	µs	
V_{CE} =	8	V	
T_j:	25 °C	125 °C	150 °C

figure 25. IGBT

Transient thermal impedance as a function of pulse width

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



D =	t_p / T	
$R_{th(j-s)}$ =	0,336	K/W

IGBT thermal model values

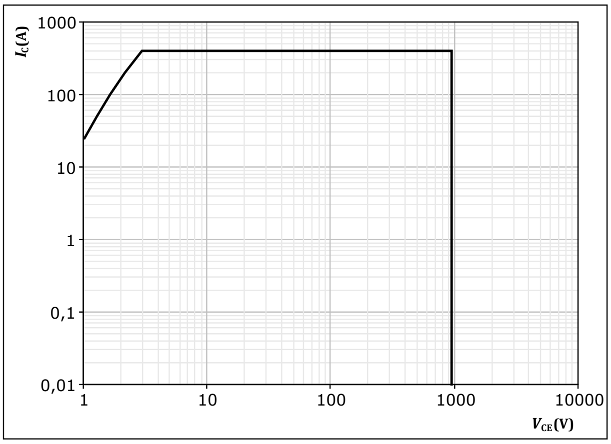
R (K/W)	τ (s)
6,56E-02	1,61E+00
1,54E-01	1,15E-01
9,21E-02	2,31E-02
1,13E-02	2,30E-03
1,31E-02	3,26E-04

AC 2 Switch H Characteristics

figure 26. **IGBT**

Safe operating area

I_C = f(V_{CE})



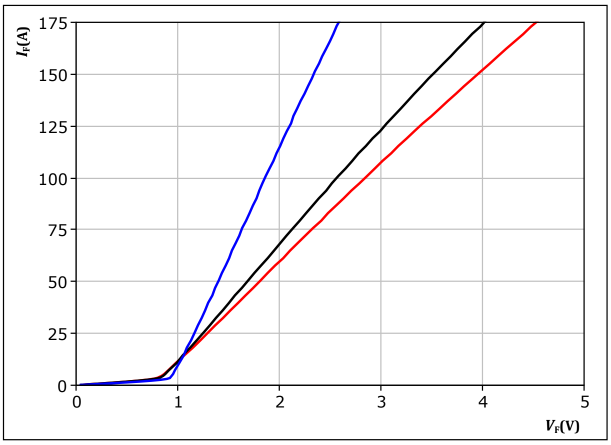
D =	single pulse	
T_s =	80	°C
V_{GE} =	15	V
T_j =	T_{jmax}	

AC 2 Diode H Characteristics

figure 27. **FWD**

Typical forward characteristics

I_F = f(V_F)



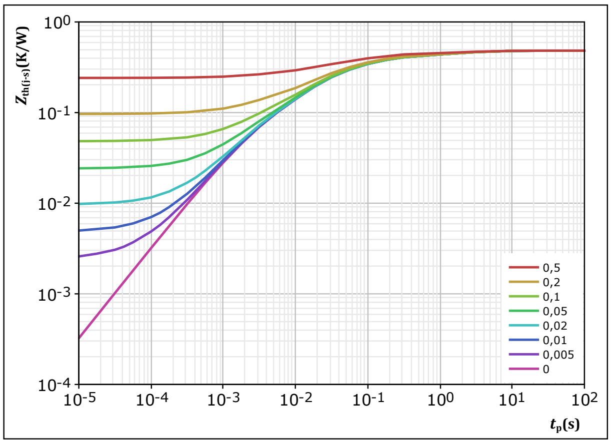
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 28. **FWD**

Transient thermal impedance as a function of pulse width

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



D = t_p / T

$R_{th(j-s)}$ = 0,482 K/W

FWD thermal model values

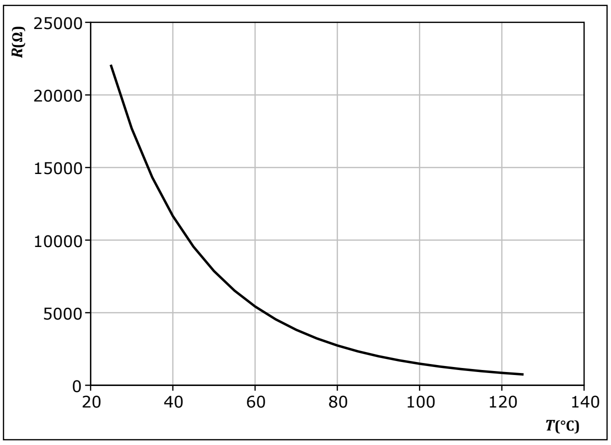
R (K/W)	τ (s)
3,66E-02	3,84E+00
5,22E-02	8,76E-01
1,74E-01	8,75E-02
1,75E-01	1,75E-02
4,55E-02	2,23E-03

Thermistor Characteristics

figure 29.	Thermistor

Typical NTC characteristic as function of temperature

R_T = f(T)

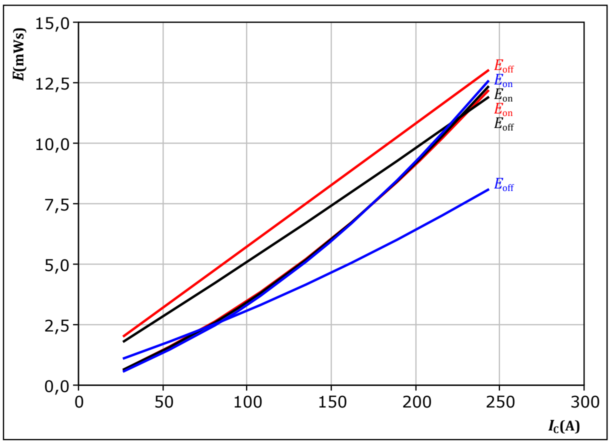


AC 1 Switching Characteristics L

figure 30. IGBT

Typical switching energy losses as a function of collector current

E = f(I_C)



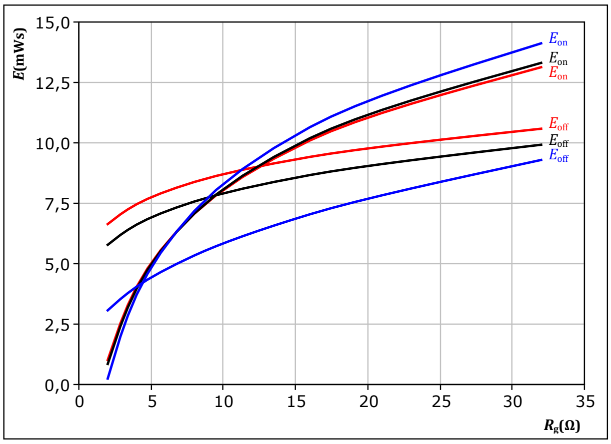
With an inductive load at

				T_j:
V_{CE} =	600	V	25 °C	
V_{GE} =	0/15	V	125 °C	
R_{gon} =	8	Ω	150 °C	
R_{goff} =	8	Ω		

figure 31. IGBT

Typical switching energy losses as a function of gate resistor

E = f(R_g)



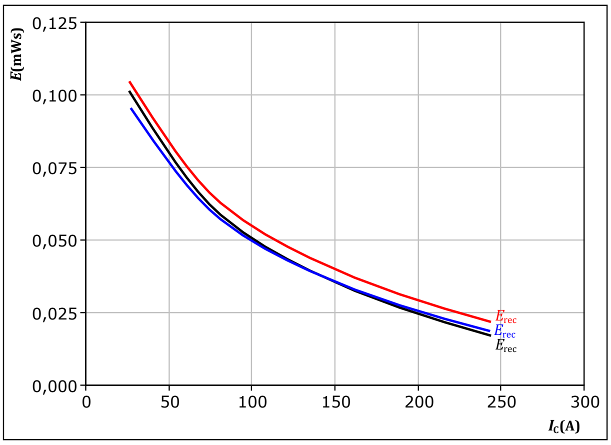
With an inductive load at

				T_j:
V_{CE} =	600	V	25 °C	
V_{GE} =	0/15	V	125 °C	
I_C =	135	A	150 °C	

figure 32. FWD

Typical reverse recovered energy loss as a function of collector current

E_{rec} = f(I_C)



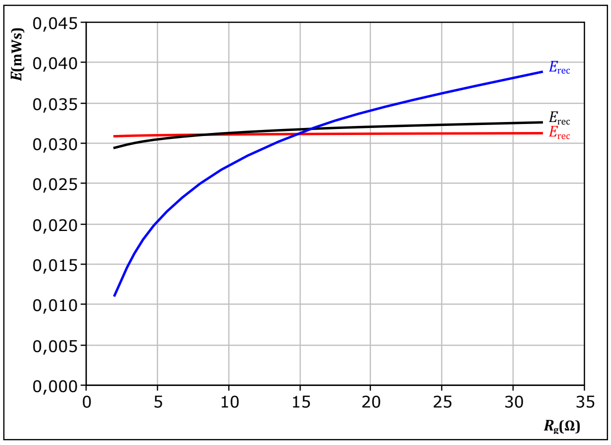
With an inductive load at

				T_j:
V_{CE} =	600	V	25 °C	
V_{GE} =	0/15	V	125 °C	
R_{gon} =	8	Ω	150 °C	

figure 33. FWD

Typical reverse recovered energy loss as a function of gate resistor

E_{rec} = f(R_g)



With an inductive load at

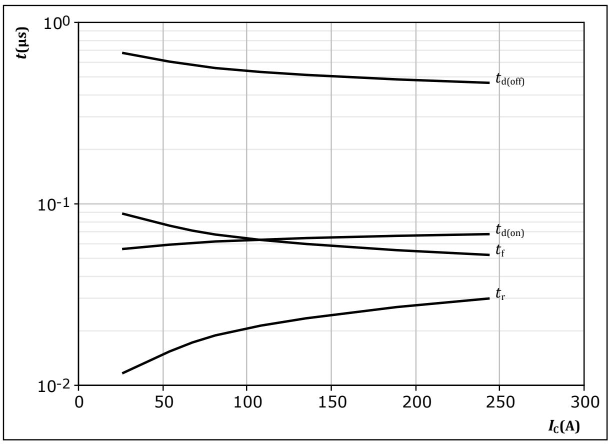
				T_j:
V_{CE} =	600	V	25 °C	
V_{GE} =	0/15	V	125 °C	
I_C =	135	A	150 °C	

AC 1 Switching Characteristics L

figure 34. IGBT

Typical switching times as a function of collector current

$t = f(I_C)$



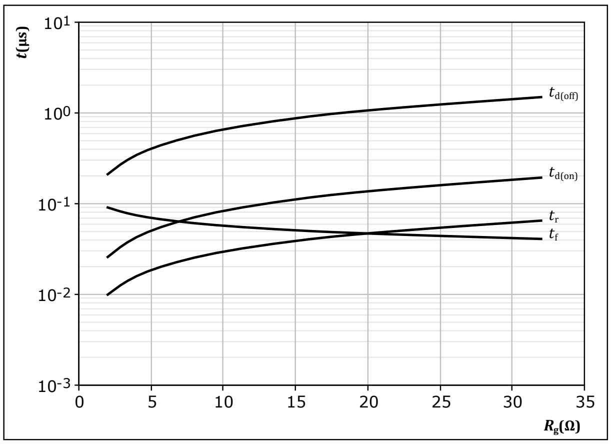
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω
R_{goff} =	8	Ω

figure 35. IGBT

Typical switching times as a function of gate resistor

$t = f(R_g)$



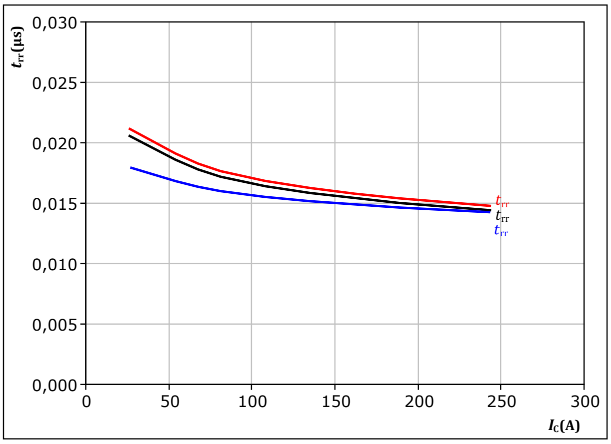
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

figure 36. FWD

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$



With an inductive load at

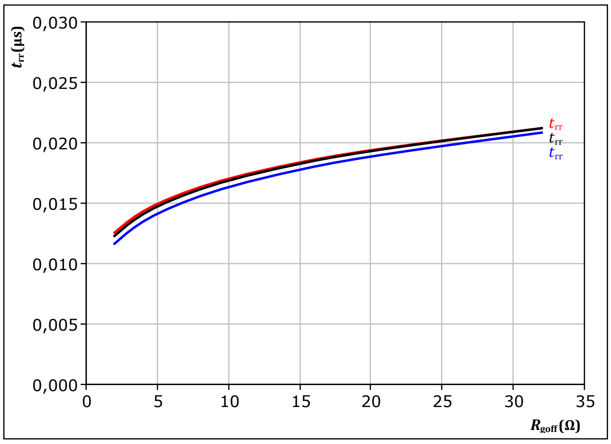
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω

T_j: 25 °C, 125 °C, 150 °C

figure 37. FWD

Typical reverse recovery time as a function of IGBT turn off gate resistor

$t_{rr} = f(R_{goff})$



With an inductive load at

V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

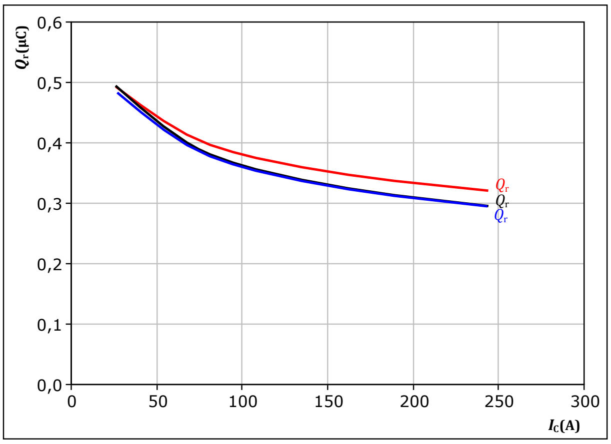
T_j: 25 °C, 125 °C, 150 °C

AC 1 Switching Characteristics L

figure 38. FWD

Typical recovered charge as a function of collector current

Q_r = f(I_C)



With an inductive load at

V_{CE} = 600 V

V_{GE} = 0/15 V

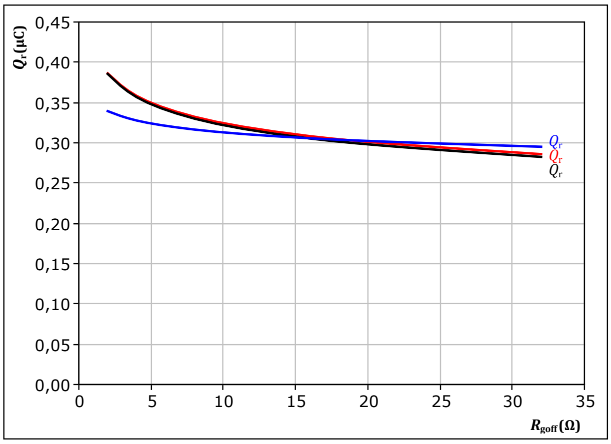
R_{gon} = 8 Ω

T_j: 25 °C, 125 °C, 150 °C

figure 39. FWD

Typical recovered charge as a function of turn off gate resistor

Q_r = f(R_{goff})



With an inductive load at

V_{CE} = 600 V

V_{GE} = 0/15 V

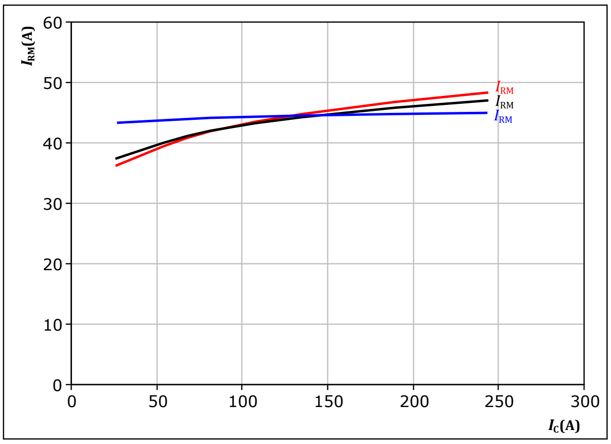
I_C = 135 A

T_j: 25 °C, 125 °C, 150 °C

figure 40. FWD

Typical peak reverse recovery current as a function of collector current

I_{RM} = f(I_C)



With an inductive load at

V_{CE} = 600 V

V_{GE} = 0/15 V

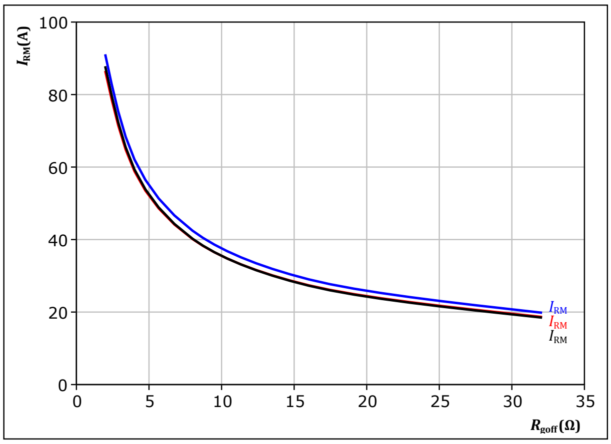
R_{gon} = 8 Ω

T_j: 25 °C, 125 °C, 150 °C

figure 41. FWD

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

I_{RM} = f(R_{goff})



With an inductive load at

V_{CE} = 600 V

V_{GE} = 0/15 V

I_C = 135 A

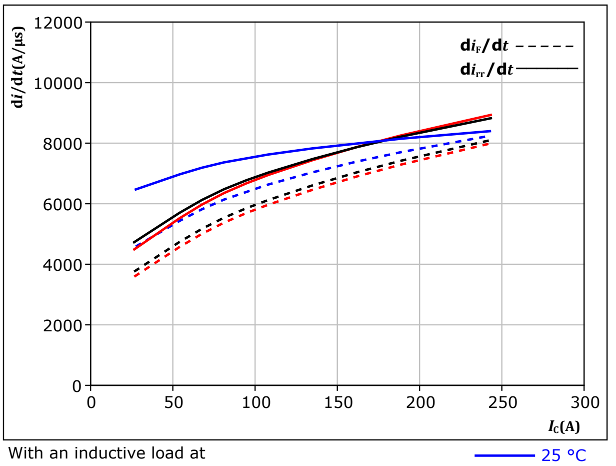
T_j: 25 °C, 125 °C, 150 °C

AC 1 Switching Characteristics L

figure 42. 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)



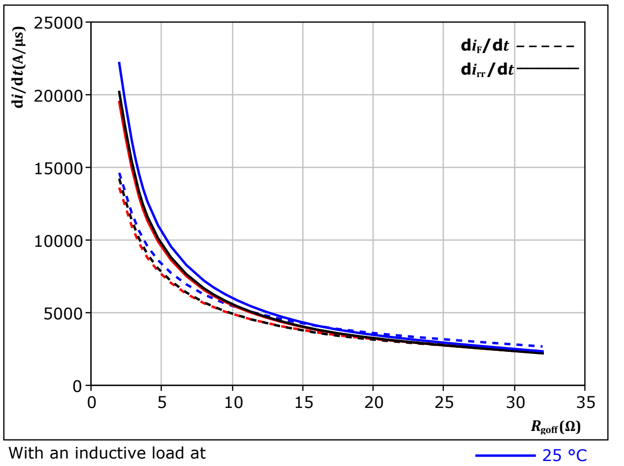
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 43. FWD

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

di_F/dt, di_{rr}/dt = f(R_{goff})



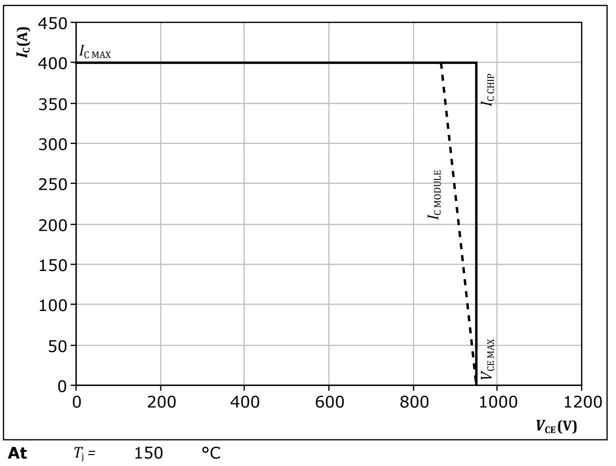
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 44. IGBT

Reverse bias safe operating area

I_C = f(V_{CE})



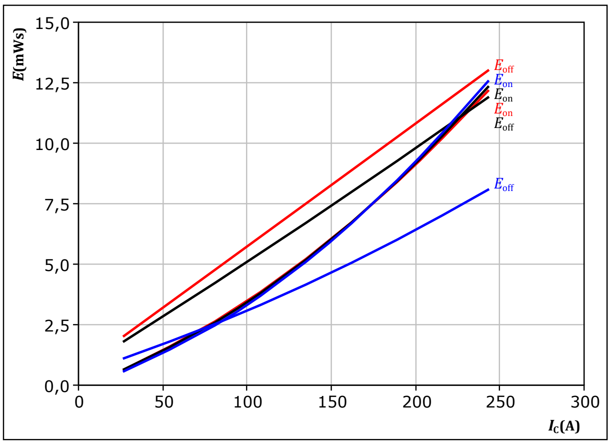
At	T_j =	150	°C
	R_{gon} =	8	Ω
	R_{goff} =	8	Ω

AC 1 Switching Characteristics H

figure 45. **IGBT**

Typical switching energy losses as a function of collector current

$E = f(I_C)$



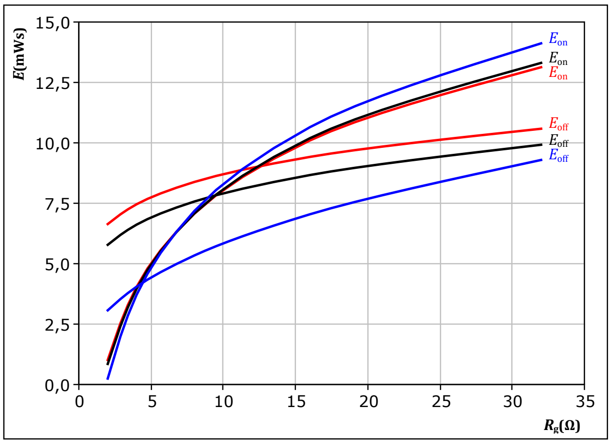
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C
R_{goff} =	8	Ω		

figure 46. **IGBT**

Typical switching energy losses as a function of gate resistor

$E = f(R_g)$



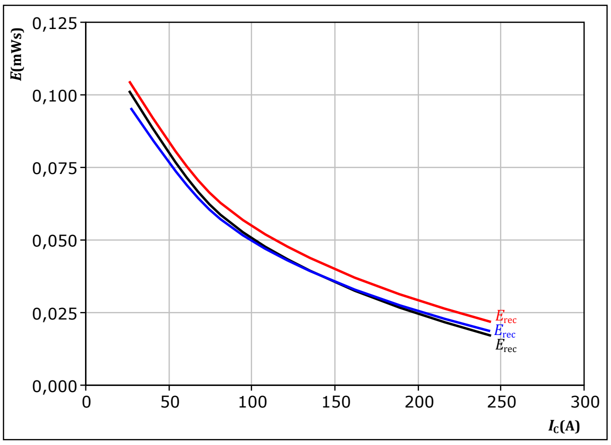
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 47. **FWD**

Typical reverse recovered energy loss as a function of collector current

$E_{rec} = f(I_C)$



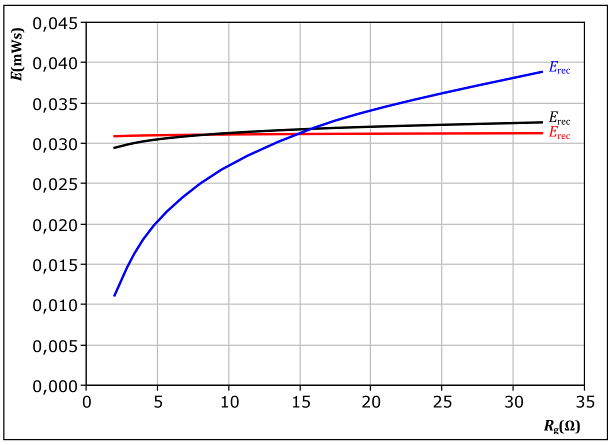
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 48. **FWD**

Typical reverse recovered energy loss as a function of gate resistor

$E_{rec} = f(R_g)$



With an inductive load at

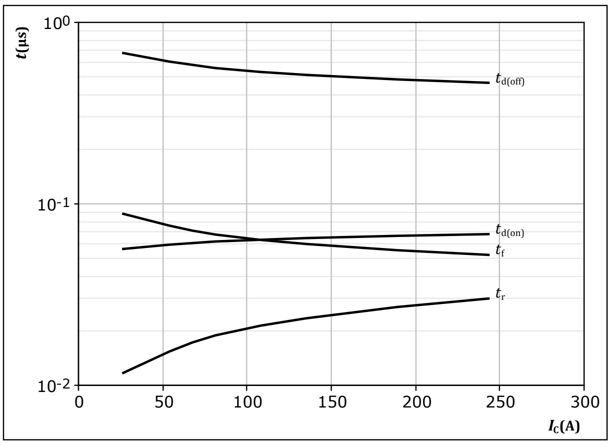
V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

AC 1 Switching Characteristics H

figure 49. IGBT

Typical switching times as a function of collector current

$t = f(I_C)$



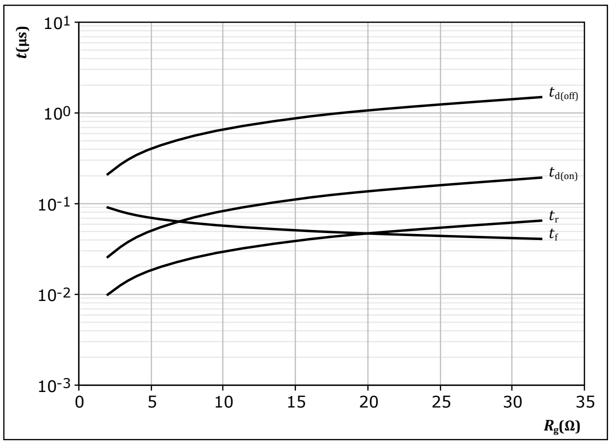
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω
R_{goff} =	8	Ω

figure 50. IGBT

Typical switching times as a function of gate resistor

$t = f(R_g)$



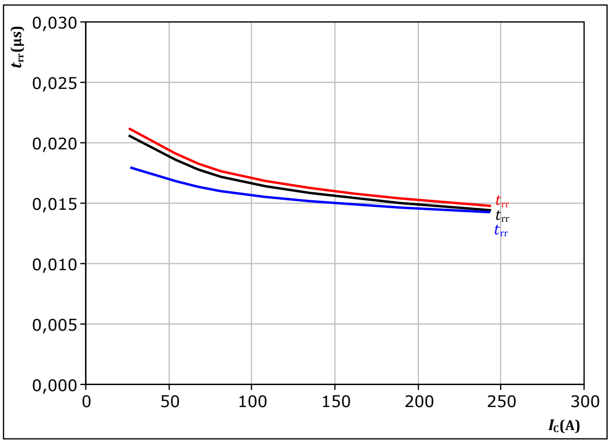
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

figure 51. FWD

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$



With an inductive load at

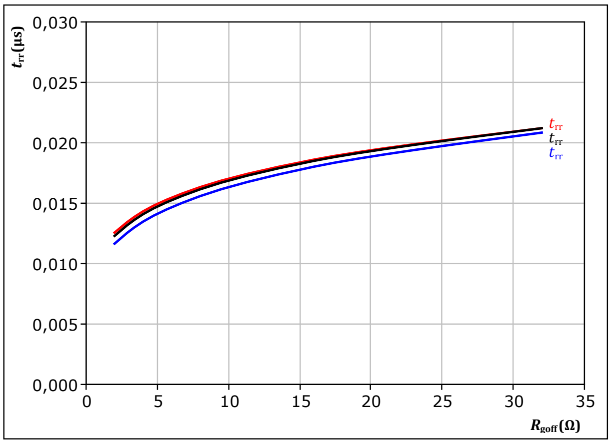
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω

T_j: 25 °C, 125 °C, 150 °C

figure 52. FWD

Typical reverse recovery time as a function of IGBT turn off gate resistor

$t_{rr} = f(R_{goff})$



With an inductive load at

V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

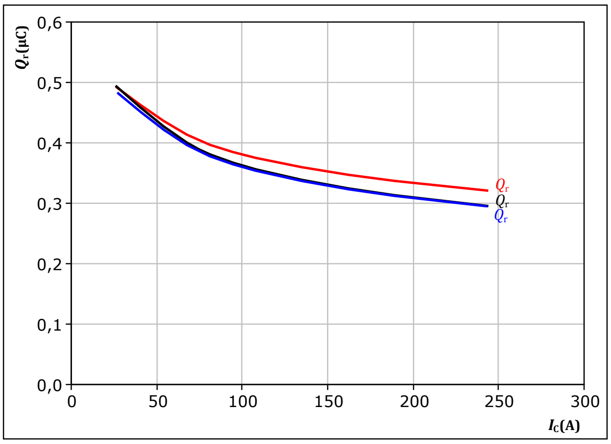
T_j: 25 °C, 125 °C, 150 °C

AC 1 Switching Characteristics H

figure 53. FWD

Typical recovered charge as a function of collector current

Q_r = f(I_C)



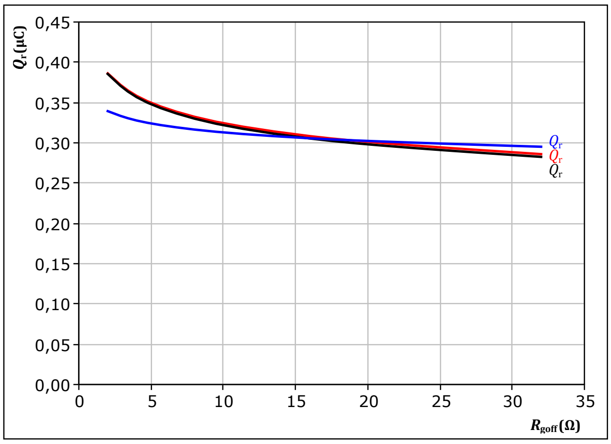
With an inductive load at

V_{CE} =	600	V	T_j: 25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V	
R_{gon} =	8	Ω	

figure 54. FWD

Typical recovered charge as a function of turn off gate resistor

Q_r = f(R_{goff})



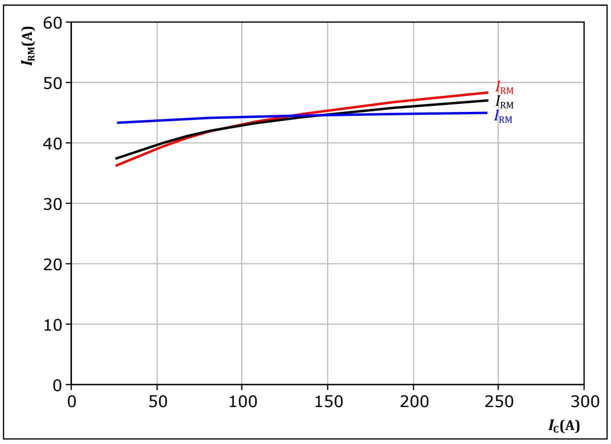
With an inductive load at

V_{CE} =	600	V	T_j: 25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V	
I_C =	135	A	

figure 55. FWD

Typical peak reverse recovery current as a function of collector current

I_{RM} = f(I_C)



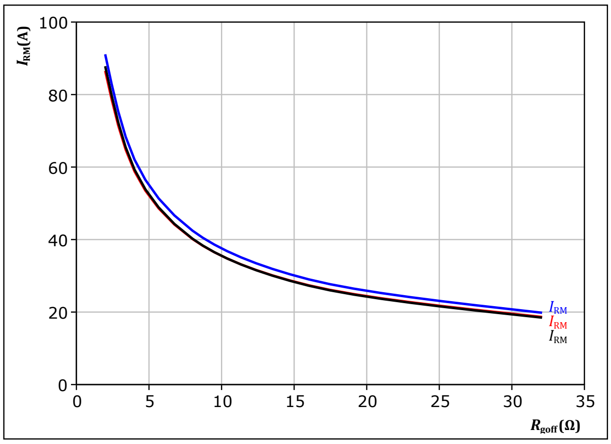
With an inductive load at

V_{CE} =	600	V	T_j: 25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V	
R_{gon} =	8	Ω	

figure 56. FWD

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

I_{RM} = f(R_{goff})



With an inductive load at

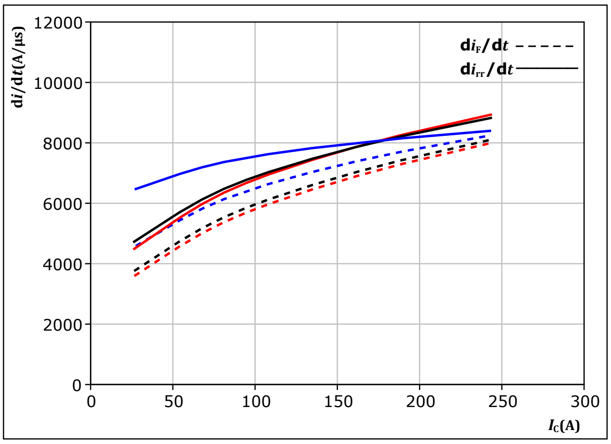
V_{CE} =	600	V	T_j: 25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V	
I_C =	135	A	

AC 1 Switching Characteristics H

figure 57. **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)



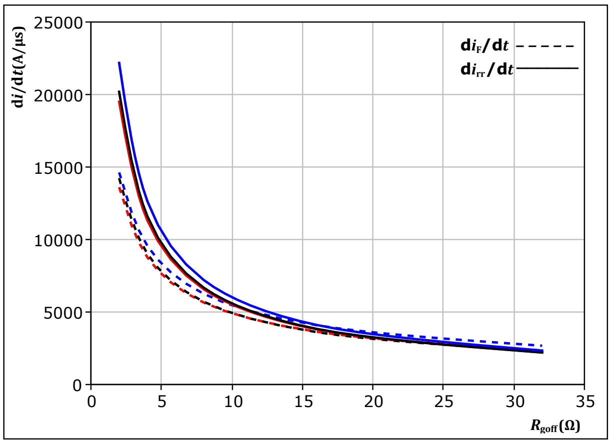
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 58. **FWD**

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

di_F/dt, di_{rr}/dt = f(R_{goff})



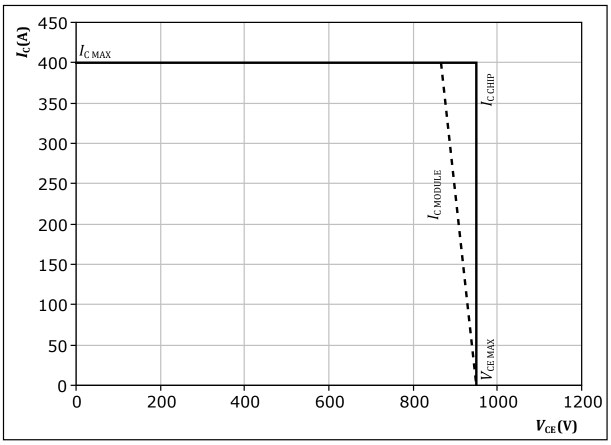
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 59. **IGBT**

Reverse bias safe operating area

I_C = f(V_{CE})



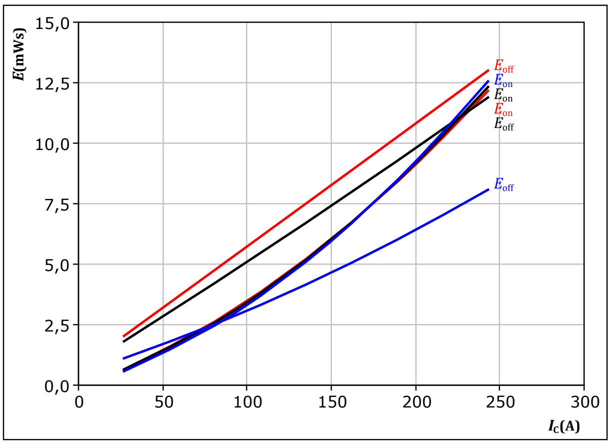
At	T_j =	150	°C
	R_{gon} =	8	Ω
	R_{goff} =	8	Ω

AC 2 Switching Characteristics L

figure 60. IGBT

Typical switching energy losses as a function of collector current

$E = f(I_C)$



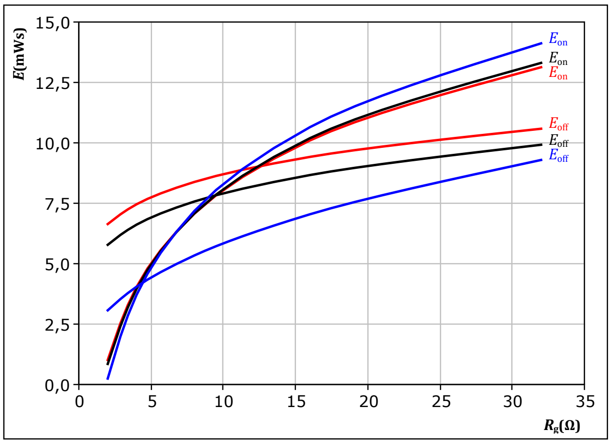
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V		
R_{gon} =	8	Ω		
R_{goff} =	8	Ω		

figure 61. IGBT

Typical switching energy losses as a function of gate resistor

$E = f(R_g)$



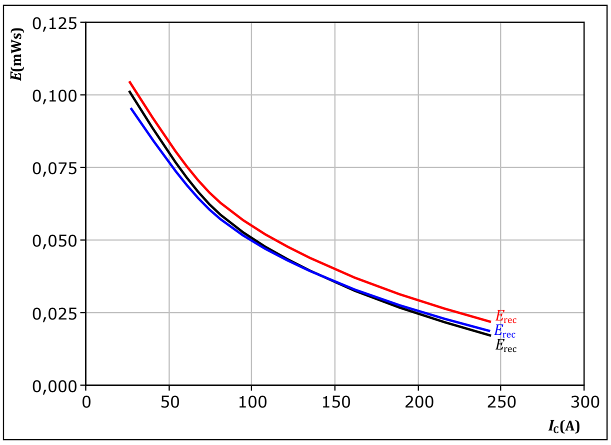
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V		
I_C =	135	A		

figure 62. FWD

Typical reverse recovered energy loss as a function of collector current

$E_{rec} = f(I_C)$



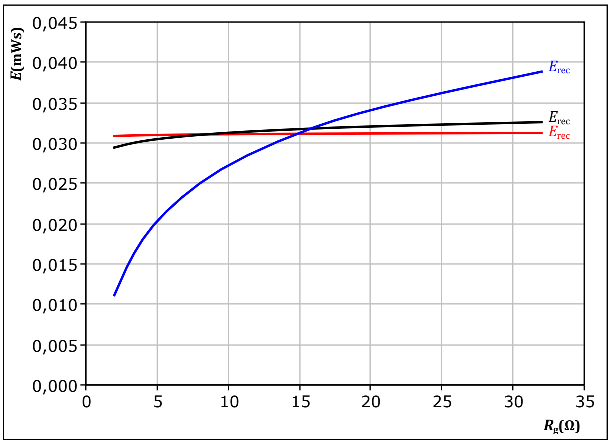
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V		
R_{gon} =	8	Ω		

figure 63. FWD

Typical reverse recovered energy loss as a function of gate resistor

$E_{rec} = f(R_g)$



With an inductive load at

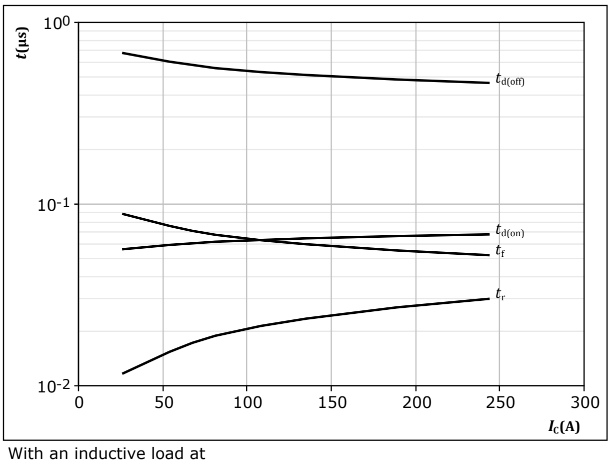
V_{CE} =	600	V	T_j:	25 °C / 125 °C / 150 °C
V_{GE} =	0/15	V		
I_C =	135	A		

AC 2 Switching Characteristics L

figure 64. **IGBT**

Typical switching times as a function of collector current

$t = f(I_C)$



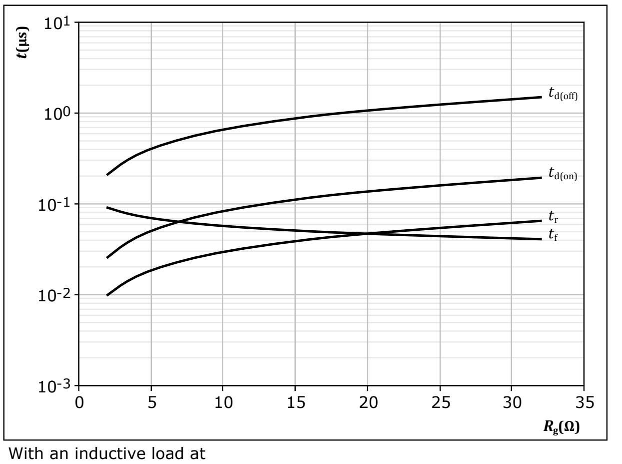
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω
R_{goff} =	8	Ω

figure 65. **IGBT**

Typical switching times as a function of gate resistor

$t = f(R_g)$



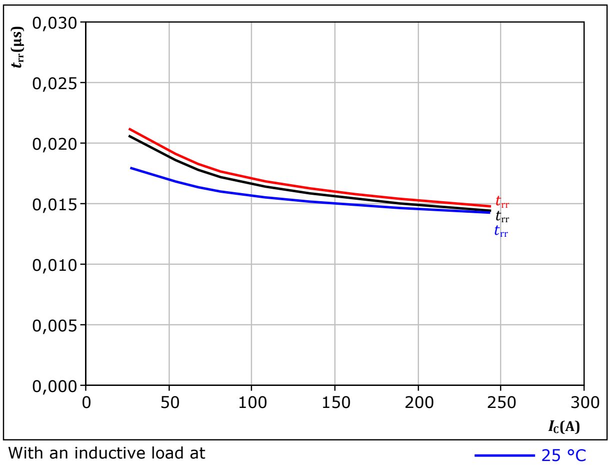
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

figure 66. **FWD**

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$



With an inductive load at

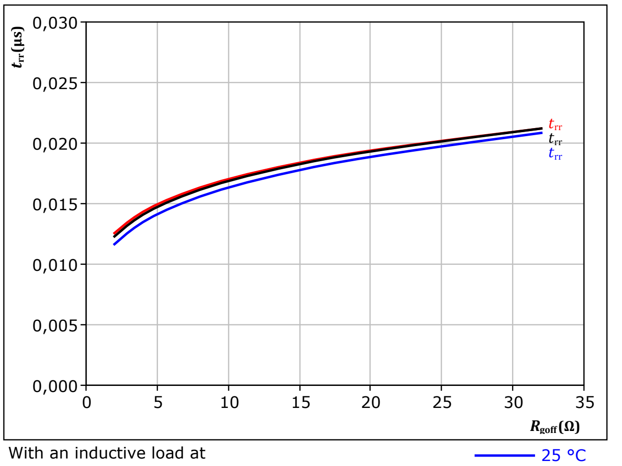
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω

T_j: 25 °C, 125 °C, 150 °C

figure 67. **FWD**

Typical reverse recovery time as a function of IGBT turn off gate resistor

$t_{rr} = f(R_{goff})$



With an inductive load at

V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

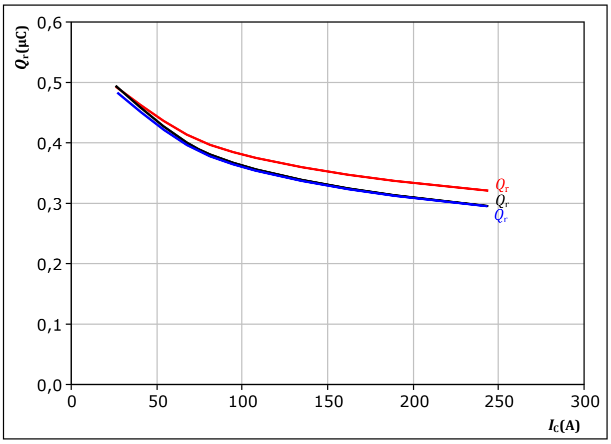
T_j: 25 °C, 125 °C, 150 °C

AC 2 Switching Characteristics L

figure 68. **FWD**

Typical recovered charge as a function of collector current

Q_r = f(I_C)



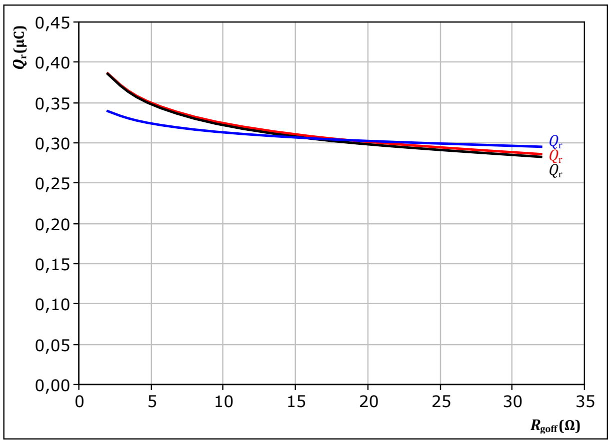
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 69. **FWD**

Typical recovered charge as a function of turn off gate resistor

Q_r = f(R_{goff})



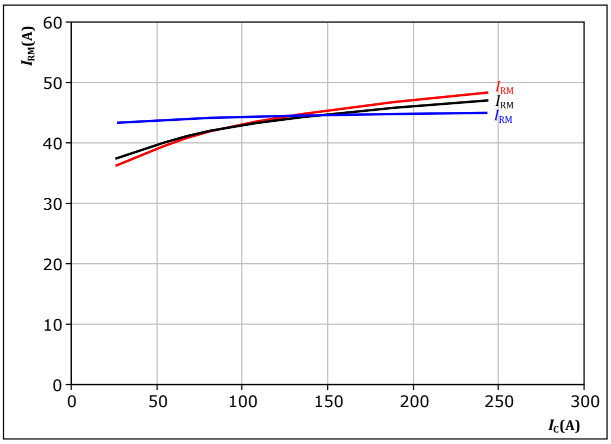
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 70. **FWD**

Typical peak reverse recovery current as a function of collector current

I_{RM} = f(I_C)



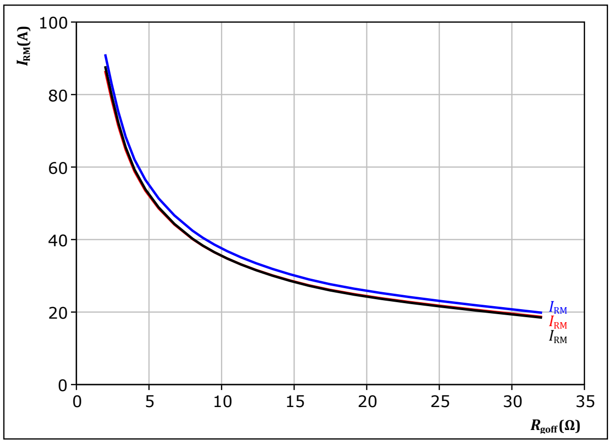
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 71. **FWD**

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

I_{RM} = f(R_{goff})



With an inductive load at

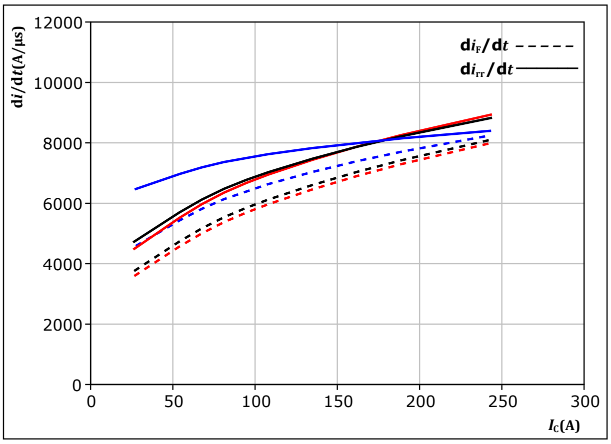
V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

AC 2 Switching Characteristics L

figure 72. **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)



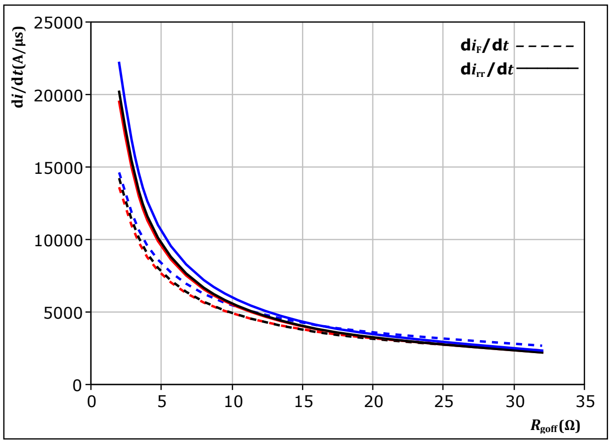
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 73. **FWD**

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

di_F/dt, di_{rr}/dt = f(R_{goff})



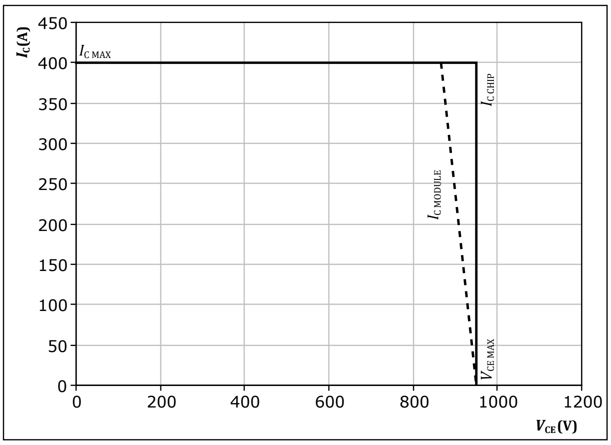
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 74. **IGBT**

Reverse bias safe operating area

I_C = f(V_{CE})



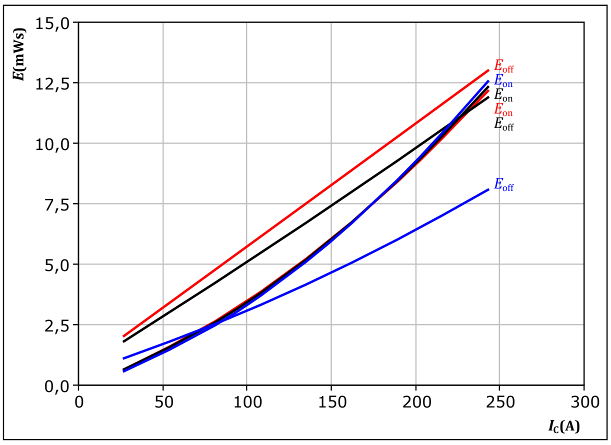
At	T_j =	150	°C
	R_{gon} =	8	Ω
	R_{goff} =	8	Ω

AC 2 Switching Characteristics H

figure 75. **IGBT**

Typical switching energy losses as a function of collector current

E = f(I_C)



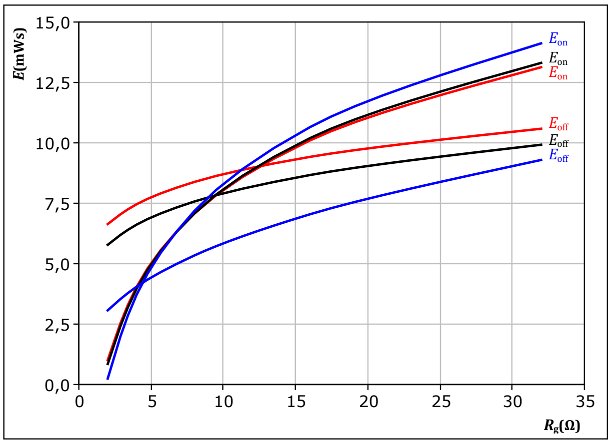
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C
R_{goff} =	8	Ω		

figure 76. **IGBT**

Typical switching energy losses as a function of gate resistor

E = f(R_g)



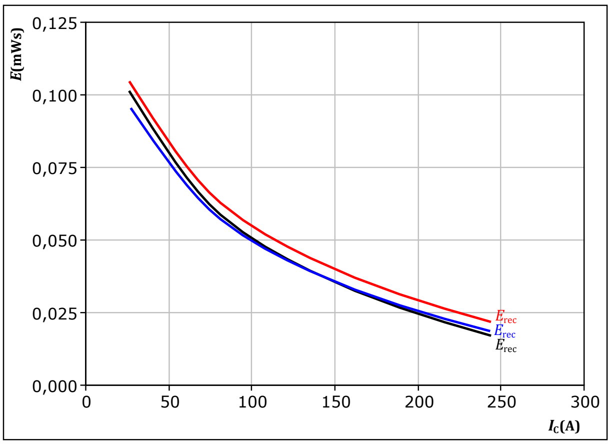
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 77. **FWD**

Typical reverse recovered energy loss as a function of collector current

E_{rec} = f(I_C)



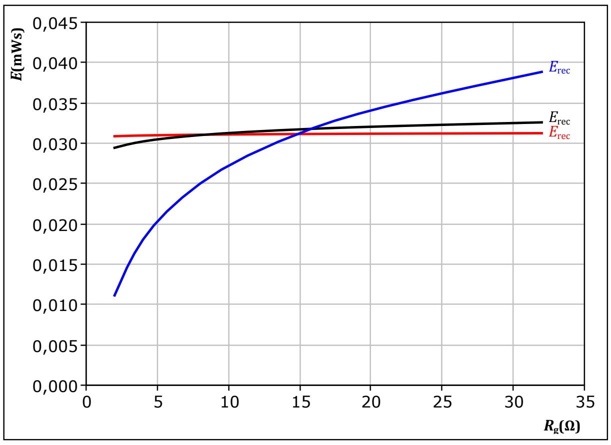
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 78. **FWD**

Typical reverse recovered energy loss as a function of gate resistor

E_{rec} = f(R_g)



With an inductive load at

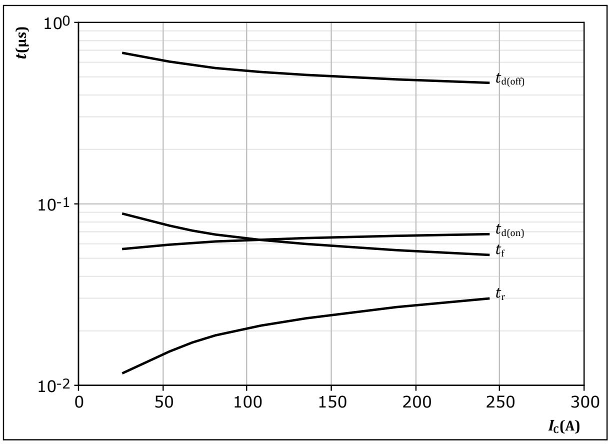
V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

AC 2 Switching Characteristics H

figure 79. **IGBT**

Typical switching times as a function of collector current

t = f(I_C)



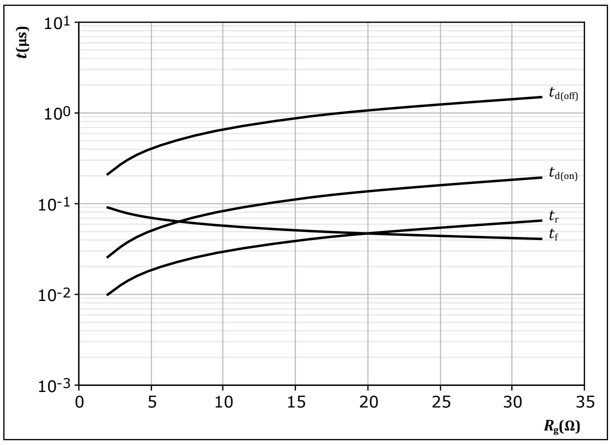
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω
R_{goff} =	8	Ω

figure 80. **IGBT**

Typical switching times as a function of gate resistor

t = f(R_g)



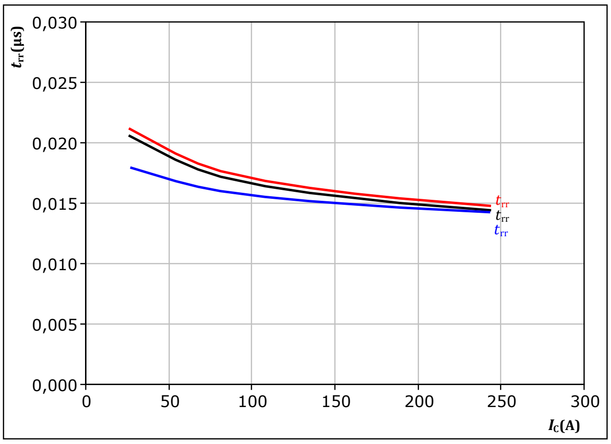
With an inductive load at

T_j =	150	°C
V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

figure 81. **FWD**

Typical reverse recovery time as a function of collector current

t_{rr} = f(I_C)



With an inductive load at

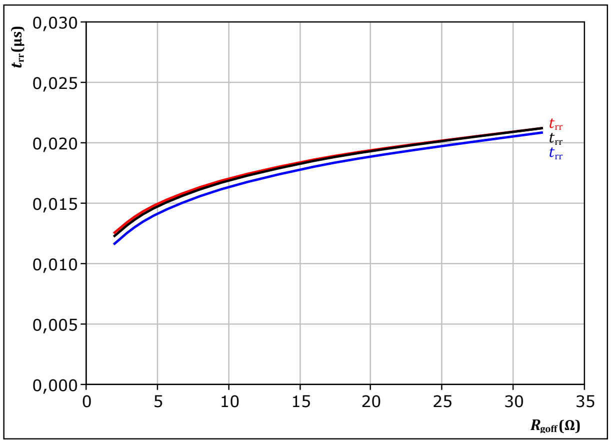
V_{CE} =	600	V
V_{GE} =	0/15	V
R_{gon} =	8	Ω

T_j: 25 °C, 125 °C, 150 °C

figure 82. **FWD**

Typical reverse recovery time as a function of IGBT turn off gate resistor

t_{rr} = f(R_{goff})



With an inductive load at

V_{CE} =	600	V
V_{GE} =	0/15	V
I_C =	135	A

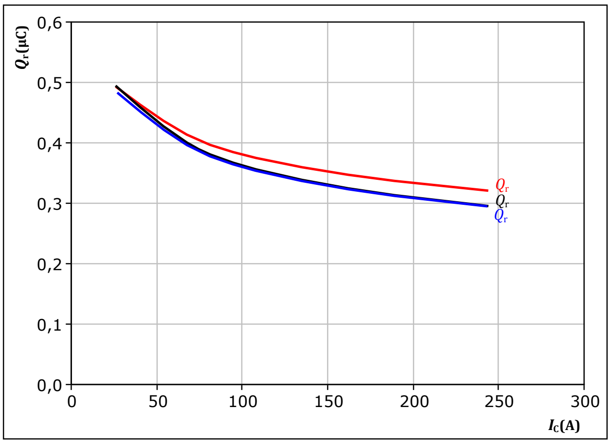
T_j: 25 °C, 125 °C, 150 °C

AC 2 Switching Characteristics H

figure 83. FWD

Typical recovered charge as a function of collector current

Q_r = f(I_C)



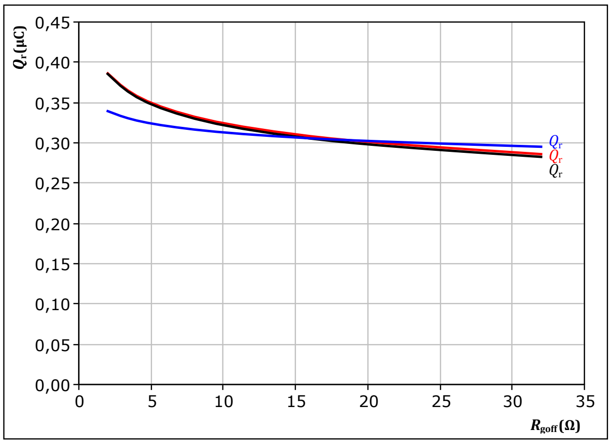
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 84. FWD

Typical recovered charge as a function of turn off gate resistor

Q_r = f(R_{goff})



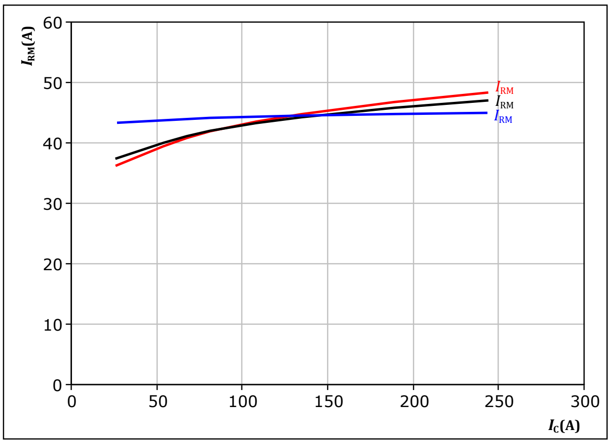
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 85. FWD

Typical peak reverse recovery current as a function of collector current

I_{RM} = f(I_C)



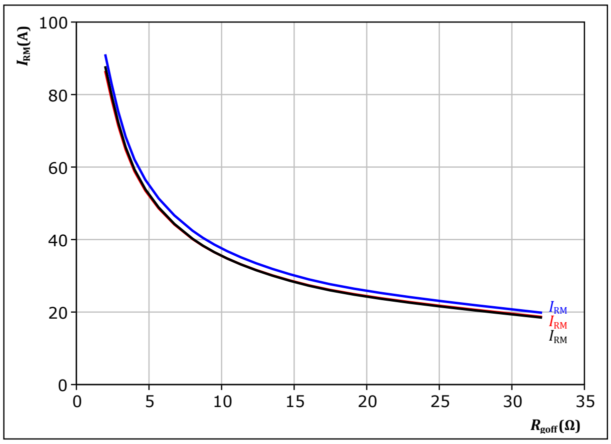
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 86. FWD

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

I_{RM} = f(R_{goff})



With an inductive load at

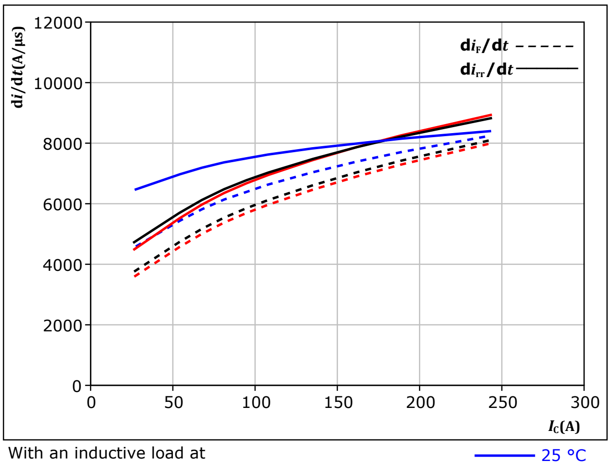
V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

AC 2 Switching Characteristics H

figure 87. **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)



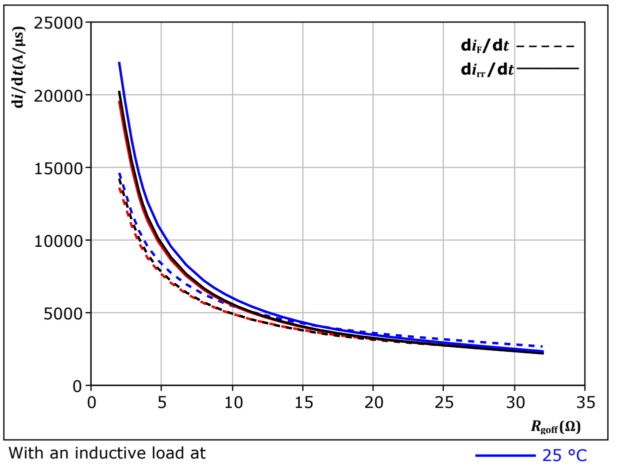
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
R_{gon} =	8	Ω		150 °C

figure 88. **FWD**

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

di_F/dt, di_{rr}/dt = f(R_{goff})



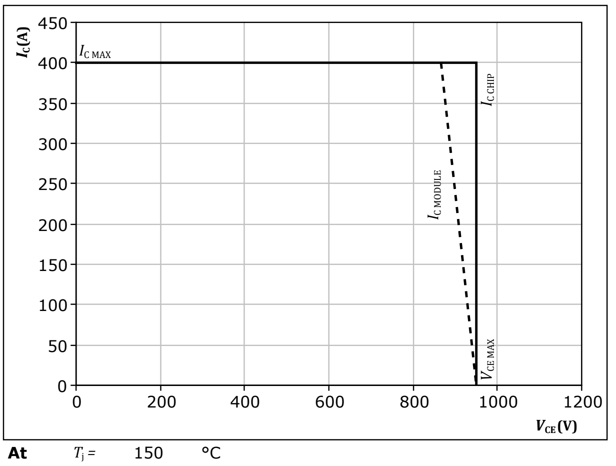
With an inductive load at

V_{CE} =	600	V	T_j:	25 °C
V_{GE} =	0/15	V		125 °C
I_C =	135	A		150 °C

figure 89. **IGBT**

Reverse bias safe operating area

I_C = f(V_{CE})



At	T_j =	150	°C
	R_{gon} =	8	Ω
	R_{goff} =	8	Ω

Switching Definitions

figure 90. **IGBT**

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

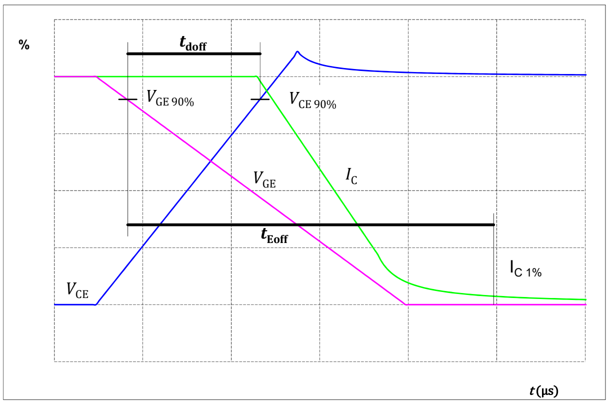


figure 91. **IGBT**

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

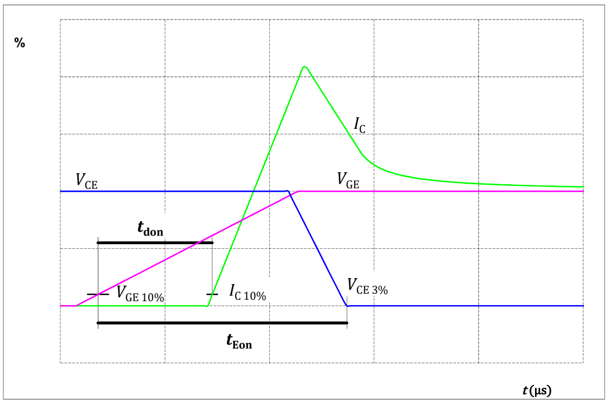


figure 92. **IGBT**

Turn-off Switching Waveforms & definition of t_f

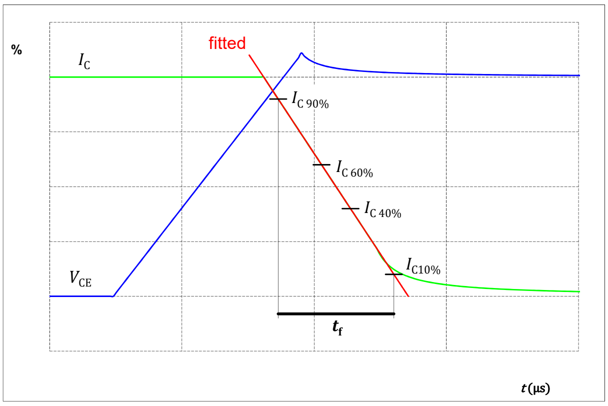
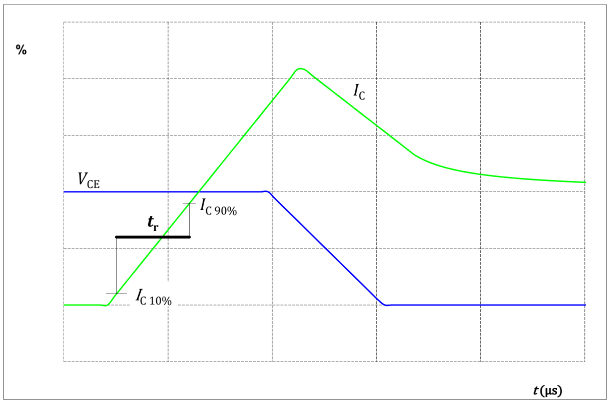


figure 93. **IGBT**

Turn-on Switching Waveforms & definition of t_r



Switching Definitions

figure 94.	FWD

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

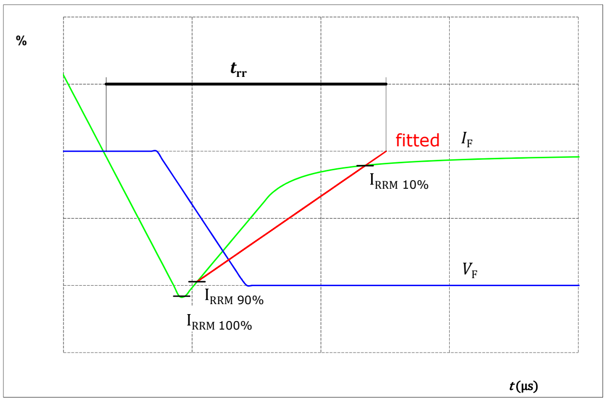
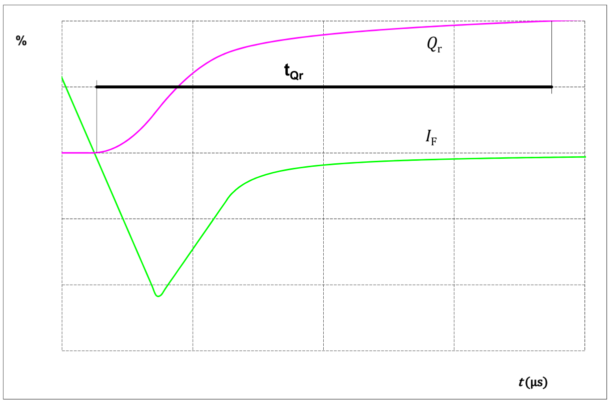


figure 95.	FWD

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



Ordering Code

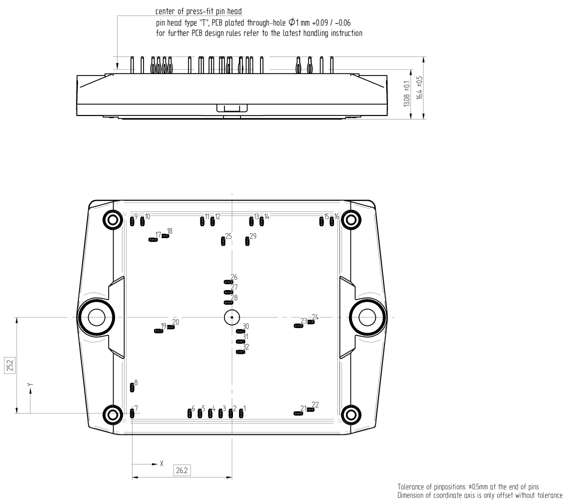
Version	Ordering Code
With thermal paste (4,4 W/mK, PTM6000)	B0-SP10FCA200S701-LM87F98T-/7/

Marking

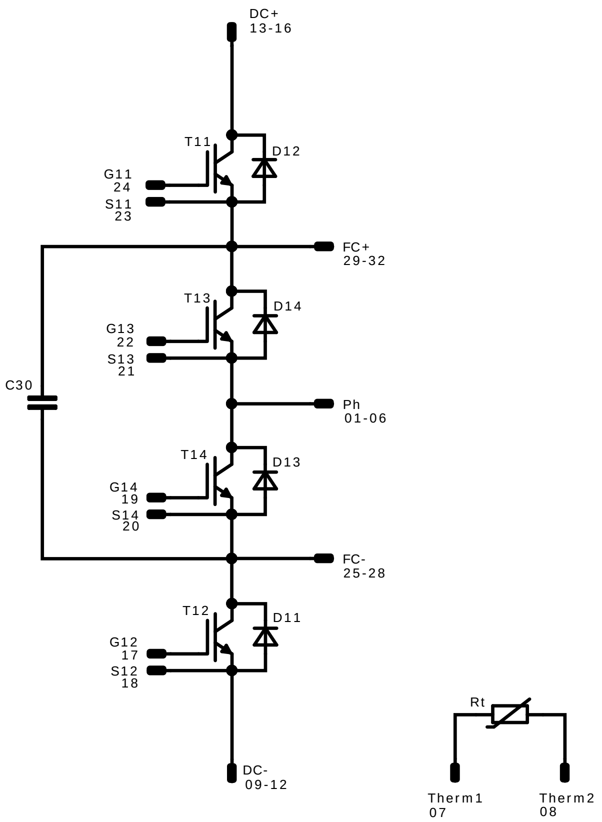
Text	**Name**		**Date code**	**UL & VIN**	**Lot**	**Serial**
	NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	**Type&Ver**	**Lot number**	**Serial**	**Date code**		
	TTTTTTTVV	LLLLL	SSSS	WWYY		

Outline

Pin table [mm]			
Pin	X	Y	Function
1	28,6	0	Ph
2	25,9	0	Ph
3	23,2	0	Ph
4	20,5	0	Ph
5	17,8	0	Ph
6	15,1	0	Ph
7	0	0	Therm1
8	0	6,8	Therm2
9	0	50,4	DC-
10	2,7	50,4	DC-
11	18,4	50,4	DC-
12	21,1	50,4	DC-
13	31,3	50,4	DC+
14	34	50,4	DC+
15	49,7	50,4	DC+
16	52,4	50,4	DC+
17	5,5	45,6	G12
18	8,5	46,6	S12
19	6,95	21,65	G14
20	9,95	22,65	S14
21	43,6	0	S13
22	46,6	1	G13
23	43,65	23	S11
24	46,65	24	G11
25	23,9	45,2	FC-
26	25,3	34,5	FC-
27	25,3	31,8	FC-
28	25,3	29,1	FC-
29	30,25	45,2	FC+
30	28,45	21,55	FC+
31	28,45	18,85	FC+
32	28,45	16,15	FC+



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T12	IGBT	950 V	200 A	AC 1 Switch L	
D11	FWD	1200 V	60 A	AC 1 Diode L	
T11	IGBT	950 V	200 A	AC 1 Switch H	
D12	FWD	1200 V	60 A	AC 1 Diode H	
T14	IGBT	950 V	200 A	AC 2 Switch L	
D13	FWD	1200 V	60 A	AC 2 Diode L	
T13	IGBT	950 V	200 A	AC 2 Switch H	
D14	FWD	1200 V	60 A	AC 2 Diode H	
C30	Capacitor	1000 V		Flying Capacitor	
Rt	Thermistor			Thermistor	

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

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
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
B0-SP10FCA200S701-LM87F98T-D1-14	24 Sep. 2020	Initial Release	
B0-SP10FCA200S701-LM87F98T-D2-14	7 Jul. 2021	Module marking is updated with UL logo, product is unchanged	