



<i>flow BOOST 0</i>	1200 V / 50 A
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;">Features</p> <ul style="list-style-type: none"> High efficiency dual boost Ultra fast switching frequency Low Inductance Layout 1200V IGBT and 1200V SiC diode Antiparallel IGBT protection diode with high current </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;">Target Applications</p> <ul style="list-style-type: none"> solar inverter </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Types</p> <ul style="list-style-type: none"> V23990-P629-L43-PM V23990-P629-L43Y-PM </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><i>flow 0 12mm housing</i></p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> Press-fit pins solder pins </div> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Schematic</p> </div>

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Bypass Diode D5, D6 / Boost Sw. Protection Diode D1, D2				
Repetitive peak reverse voltage	V_{RRM}		1600	V
Mean forward current	I_{FAV}	$T_j=T_{jmax}$	$T_s = 80^{\circ}\text{C}$	38
			$T_c=80^{\circ}\text{C}$	45
Surge (non-repetitive) forward current	I_{FSM}	$t_p=10\text{ms}$	220	A
I ² t-value	I^2t	$T_j=25^{\circ}\text{C}$	200	A ² s
Power dissipation	P_{tot}	$T_j=T_{jmax}$	$T_s = 80^{\circ}\text{C}$	47
			$T_c=80^{\circ}\text{C}$	71
Maximum Junction Temperature	T_{jmax}		150	°C
Boost Switch (T1,T2)				
Collector-emitter break down voltage	V_{CES}		1200	V
DC collector current	I_C	$T_j=T_{jmax}$	$T_s = 80^{\circ}\text{C}$	51
			$T_c=80^{\circ}\text{C}$	65
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	150	A
Turn off safe operating area		$T_j \leq 150^{\circ}\text{C}$ $V_{CE} \leq V_{CES}$	100	A
Power dissipation	P_{tot}	$T_j=T_{jmax}$	$T_s = 80^{\circ}\text{C}$	144
			$T_c=80^{\circ}\text{C}$	210
Gate-emitter peak voltage	V_{GE}		±20	V
Short circuit ratings	t_{SC}	$T_j \leq 150^{\circ}\text{C}$	10	µs
	V_{CC}	$V_{GE} = 15\text{V}$	800	V
Maximum Junction Temperature	T_{jmax}		175	°C



Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Boost Diode (D3,D4)				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
Mean forward current	I_{FAV}	$T_j=T_{jmax}$ $T_s = 80^{\circ}\text{C}$ $T_c=80^{\circ}\text{C}$	28 34	A
Surge (non-repetitive) forward current	I_{FSM}	$t_p=10\text{ms}$ $T_j=25^{\circ}\text{C}$	138	A
I^2t -value	I^2t		95	A^2s
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	78	A
Power dissipation	P_{tot}	$T_j=T_{jmax}$ $T_s = 80^{\circ}\text{C}$ $T_c=80^{\circ}\text{C}$	81 123	W
Maximum Junction Temperature	T_{jmax}		175	$^{\circ}\text{C}$

Thermal Properties

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

Insulation Properties

	isol		$\square \square \square \square \square \square \square \square \square \square$	$\square \mu$
			R	
			R	
C		M		
	CTI			



Characteristic Values

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

Bypass Diode D5, D6 / Boost Sw. Protection Diode D1, D2

Forward voltage	V_F				25	25 125	0,8	1,14 1,10	1,9	V
Threshold voltage (for power loss calc. only)	V_{to}				25	25 125		0,92 0,80		V
Slope resistance (for power loss calc. only)	r_t				25	25 125		0,009 0,012		Ω
Reverse current	I_r			1500		25 125			0,05	mA
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$						1,49		K/W
Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease tickness $\leq 50\mu m$ $\lambda=1 W/K$						1,73		K/W

Boost Switch (T1, T2)

Gate emitter threshold voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$				0,0017	25 125	5,2	5,8	6,4	V
Collector-emitter saturation voltage	V_{CESat}		15			50	25 125	1,5	2,13 2,58	2,5	V
Collector-emitter cut-off	I_{CES}		0	1200			25 125			0,05	mA
Gate-emitter leakage current	I_{GES}		20	0			25 125			600	nA
Integrated Gate resistor	R_{gint}							4			Ω
Turn-on delay time	$t_{d(on)}$						25 125		27 27		ns
Rise time	t_r						25 125		14 17		
Turn-off delay time	$t_{d(off)}$	$R_{goff}=4 \Omega$	15	700	40		25 125		256 320		
Fall time	t_f	$R_{gon}=4 \Omega$					25 125		47 57		
Turn-on energy loss	E_{on}						25 125		1,051 1,224		mWs
Turn-off energy loss	E_{off}						25 125		1,540 2,430		
Input capacitance	C_{ies}								2770		pF
Output capacitance	C_{oss}	$f=1MHz$	0	25		25			240		
Reverse transfer capacitance	C_{rss}								160		
Gate charge	Q_G		15	960	50	25			230		nC
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$							0,66		K/W
Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease tickness $\leq 50\mu m$ $\lambda=1 W/K$							0,80		K/W

Boost Diode (D3, D4)

Forward voltage	V_F				15	25 125		1,43 1,69	2		V
Reverse leakage current	I_{rm}			1200		25 125				150	μA
Peak recovery current	I_{RRM}					25 125		17 15			A
Reverse recovery time	t_{rr}					25 125		9 9			ns
Reverse recovery charge	Q_{rr}	$R_{gon}=4 \Omega$	15	700	40	25 125		0,24 0,21			μC
Reverse recovered energy	E_{rec}					25 125		0,093 0,074			mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125		6570 5559			A/ μs
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$							1,17		K/W
Thermal resistance junction to case	$R_{th(j-s)}$	Thermal grease tickness $\leq 50\mu m$ $\lambda=1 W/K$							1,36		K/W



Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V] or V_{GS} [V]	V_r [V] or V_{CE} [V] or V_{DS} [V]	I_C [A] or I_F [A] or I_D [A]	T_j [°C]	Min	Typ	Max		
Thermistor										
Rated resistance	R				25		22			kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100}=1486 \Omega$			100	-12		12		%
Power dissipation	P				25		200			mW
Power dissipation constant					25		2			mW/K
B-value	$B_{(25/50)}$	Tol. ±3%			25		3950			K
B-value	$B_{(25/100)}$	Tol. ±3%			25		3998			K
Vincotech NTC Reference									B	

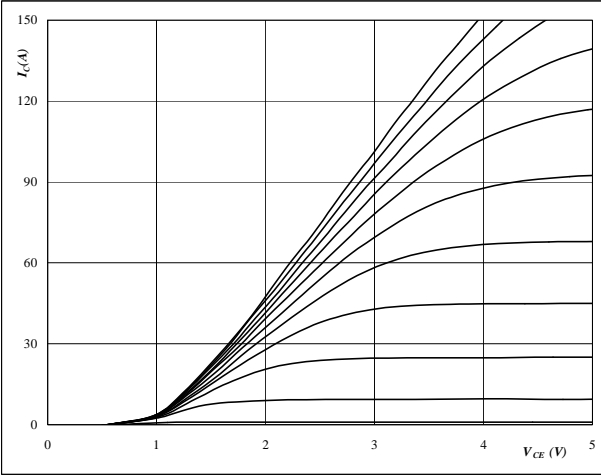


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 1 T1, T2

Typical output characteristics

$I_C = f(V_{CE})$



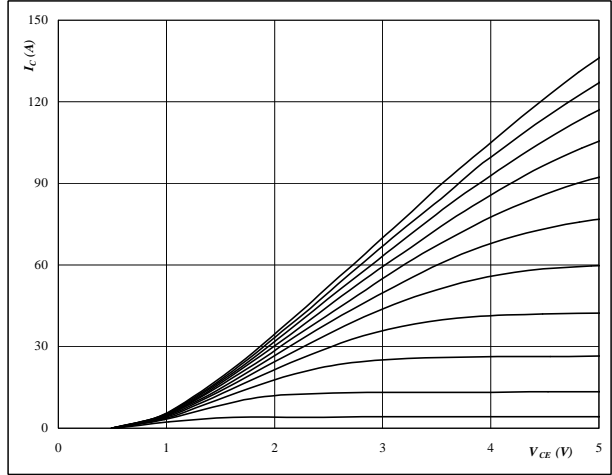
At

$t_p = 250 \mu s$
 $T_j = 25 \text{ } ^\circ C$
 V_{GE} from 7 V to 17 V in steps of 1 V

Figure 2 T1, T2

Typical output characteristics

$I_C = f(V_{CE})$



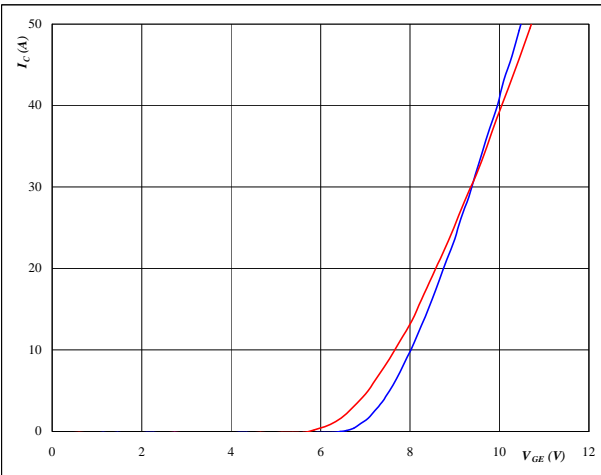
At

$t_p = 250 \mu s$
 $T_j = 125 \text{ } ^\circ C$
 V_{GE} from 7 V to 17 V in steps of 1 V

Figure 3 T1, T2

Typical transfer characteristics

$I_C = f(V_{GE})$



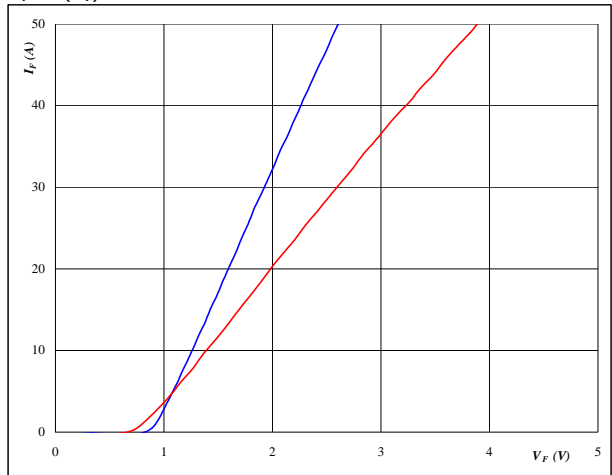
At

$t_p = 100 \mu s$
 $V_{CE} = 10 V$
 $T_j = 25/125 \text{ } ^\circ C$

Figure 4 D3,D4

Typical diode forward current as a function of forward voltage

$I_F = f(V_F)$



At

$t_p = 250 \mu s$
 $T_j = 25/125 \text{ } ^\circ C$

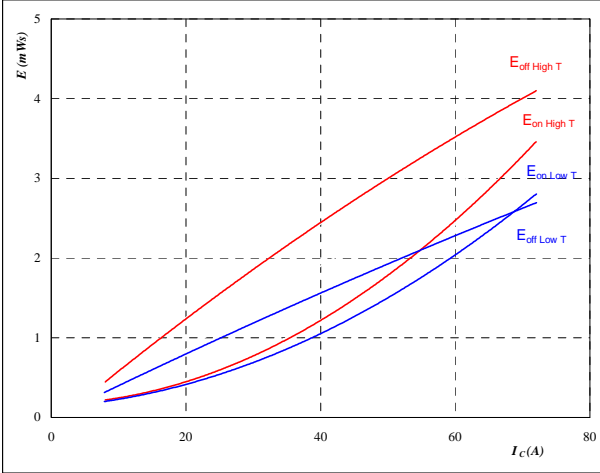


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 5 T1, T2

Typical switching energy losses
as a function of collector current

$$E = f(I_C)$$



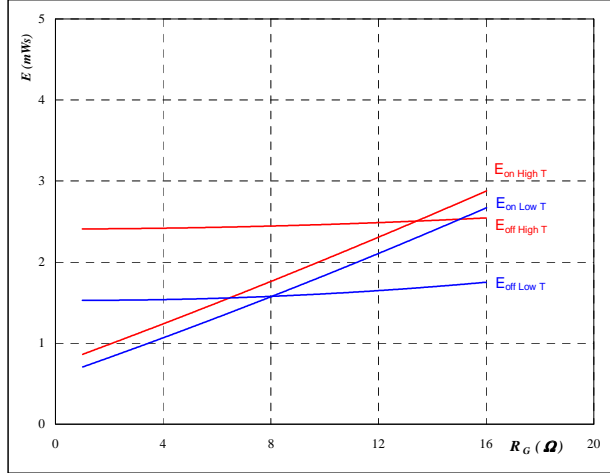
With an inductive load at

$T_j = 25/125$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 15$ V
 $R_{gon} = 4$ Ω
 $R_{goff} = 4$ Ω

Figure 6 T1, T2

Typical switching energy losses
as a function of gate resistor

$$E = f(R_G)$$



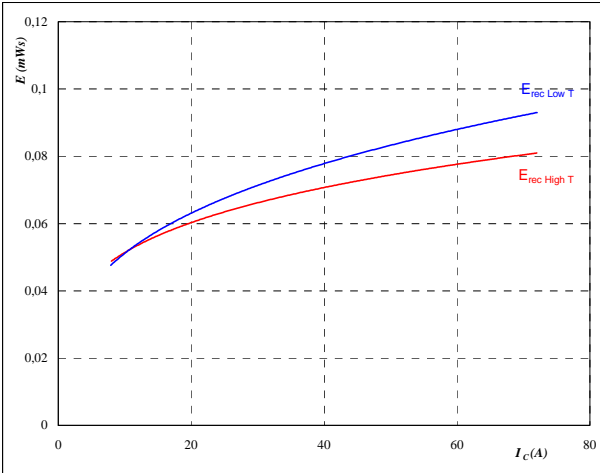
With an inductive load at

$T_j = 25/125$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 15$ V
 $I_C = 40$ A

Figure 7 D3,D4

Typical reverse recovery energy loss
as a function of collector current

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



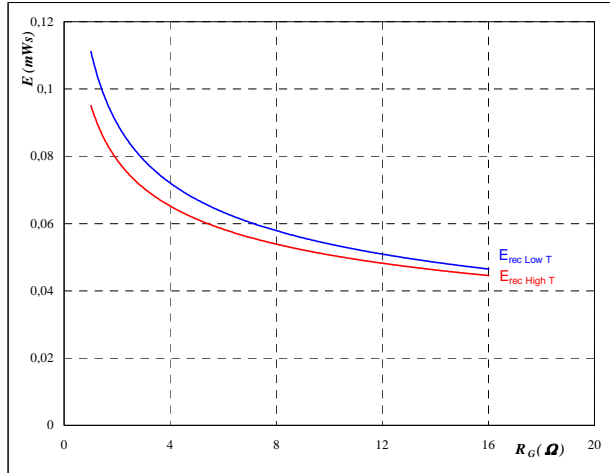
With an inductive load at

$T_j = 25/125$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 15$ V
 $R_{gon} = 4$ Ω
 $R_{goff} = 4$ Ω

Figure 8 D3,D4

Typical reverse recovery energy loss
as a function of gate resistor

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



With an inductive load at

$T_j = 25/125$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 15$ V
 $I_C = 40$ A

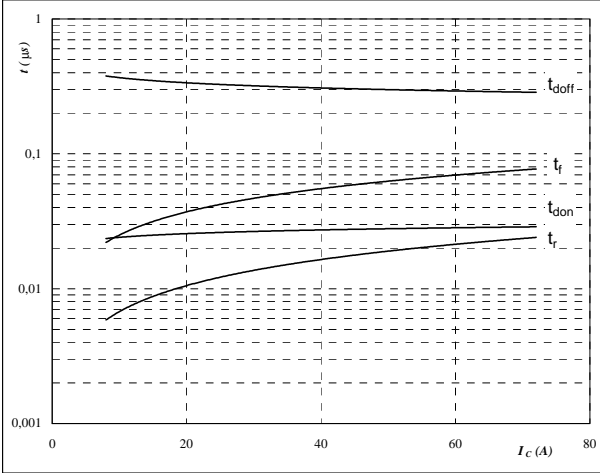


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 9 T1, T2

Typical switching times as a function of collector current

$$t = f(I_C)$$



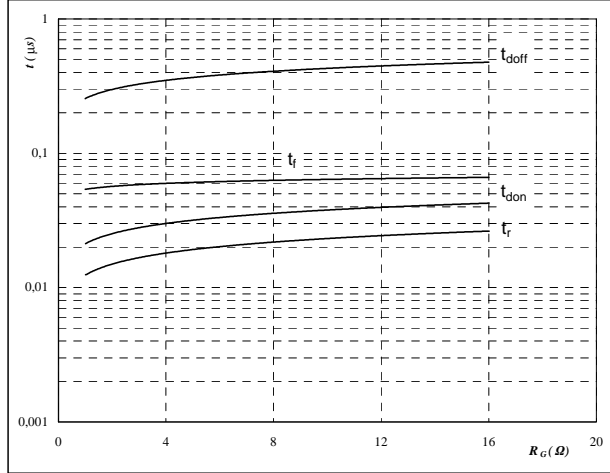
With an inductive load at

$T_j =$	126	°C
$V_{CE} =$	700	V
$V_{GE} =$	15	V
$R_{gon} =$	4	Ω
$R_{goff} =$	4	Ω

Figure 10 T1, T2

Typical switching times as a function of gate resistor

$$t = f(R_G)$$



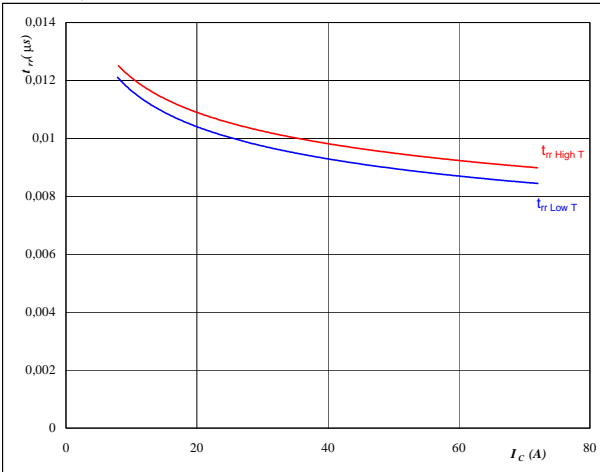
With an inductive load at

$T_j =$	126	°C
$V_{CE} =$	700	V
$V_{GE} =$	15	V
$I_C =$	40	A

Figure 11 D3,D4

Typical reverse recovery time as a function of collector current

$$t_{rr} = f(I_C)$$



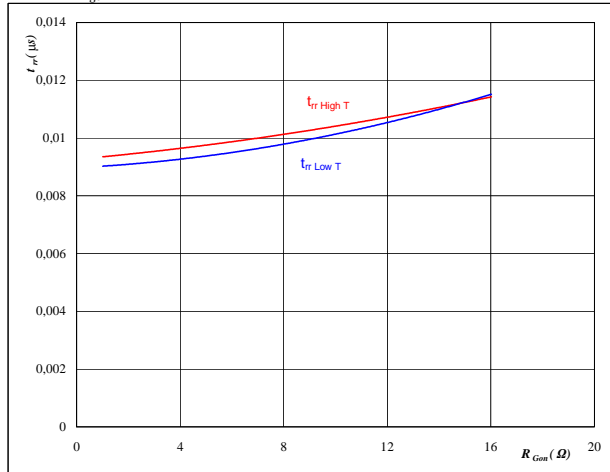
At

$T_j =$	25/125	°C
$V_{CE} =$	700	V
$V_{GE} =$	15	V
$R_{gon} =$	4	Ω

Figure 12 D3,D4

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

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



At

$T_j =$	25/125	°C
$V_R =$	700	V
$I_F =$	40	A
$V_{GE} =$	15	V

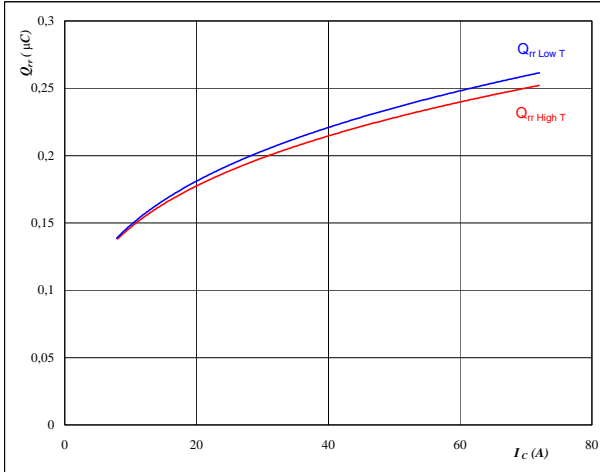


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 13 D3,D4

Typical reverse recovery charge as a function of collector current

$$Q_{rr} = f(I_C)$$



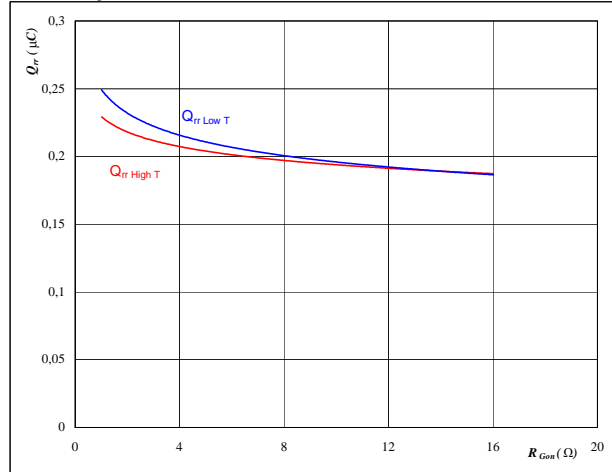
At

$T_j =$	25/125	°C
$V_{CE} =$	700	V
$V_{GE} =$	15	V
$R_{gon} =$	4	Ω

Figure 14 D3,D4

Typical reverse recovery charge as a function of IGBT turn on gate resistor

$$Q_{rr} = f(R_{gon})$$



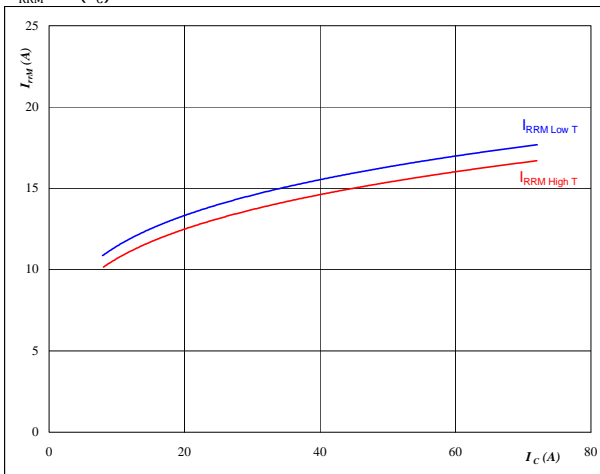
At

$T_j =$	25/125	°C
$V_R =$	700	V
$I_T =$	40	A
$V_{GS} =$	15	V

Figure 15 D3,D4

Typical reverse recovery current as a function of collector current

$$I_{RRM} = f(I_C)$$



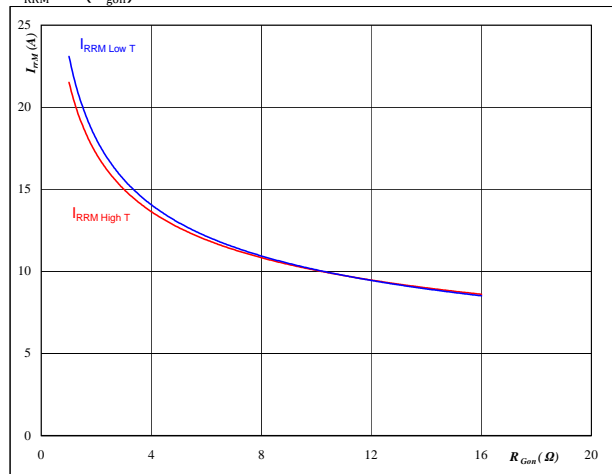
At

$T_j =$	25/125	°C
$V_{CE} =$	700	V
$V_{GE} =$	15	V
$R_{gon} =$	4	Ω

Figure 16 D3,D4

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

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



At

$T_j =$	25/125	°C
$V_R =$	700	V
$I_F =$	40	A
$V_{GE} =$	15	V

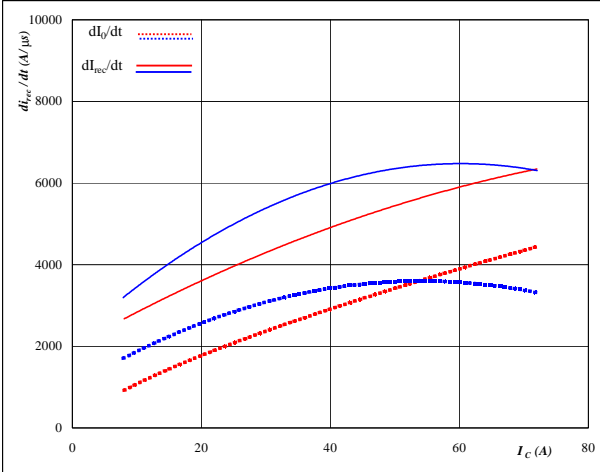


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 17 D3,D4

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

$$dI_0/dt, dI_{rec}/dt = f(I_c)$$

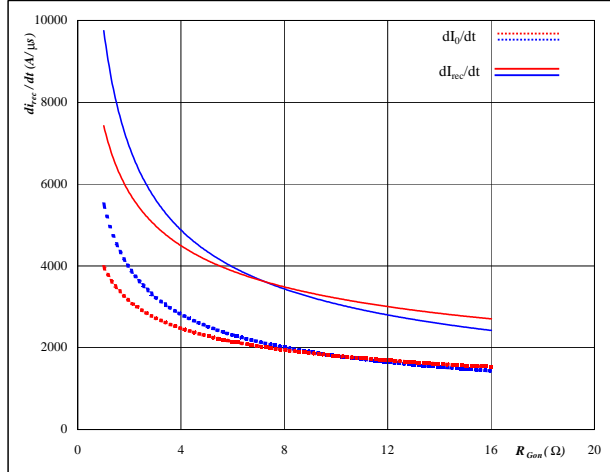


At
 $T_j = 25/125$ °C
 $V_{CE} = 700$ V
 $V_{GE} = 15$ V
 $R_{gon} = 4$ Ω

Figure 18 D3,D4

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

$$dI_0/dt, dI_{rec}/dt = f(R_{gon})$$

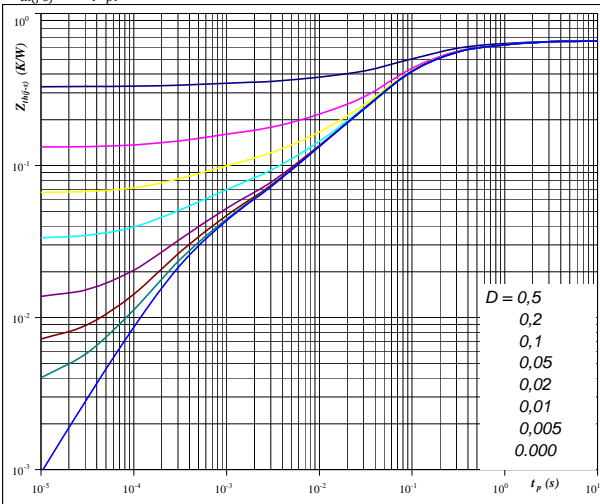


At
 $T_j = 25/125$ °C
 $V_R = 700$ V
 $I_F = 40$ A
 $V_{GE} = 15$ V

Figure 19 T1, T2

IGBT transient thermal impedance as a function of pulse width

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



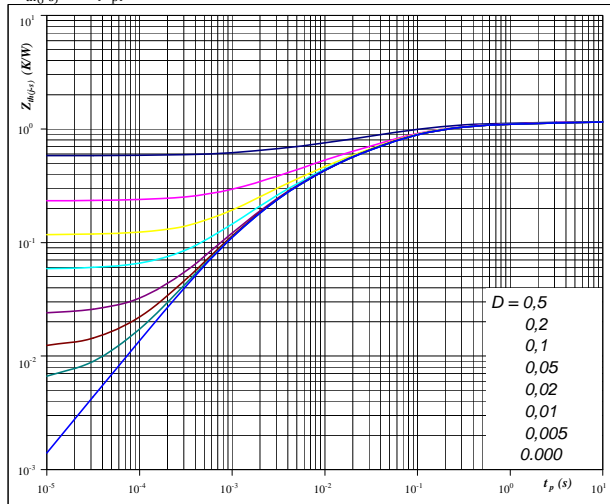
At
 $D = t_p / T$
 phase-change material Thermal grease
 $R_{th(j-s)} = 0,66$ K/W $R_{th(j-s)} = 0,80$ K/W
 IGBT thermal model values

phase-change material		Thermal grease	
R (K/W)	Tau (s)	R (K/W)	Tau (s)
0,085	1,272	0,103	1,272
0,179	0,186	0,216	0,186
0,314	0,060	0,378	0,060
0,053	0,005	0,064	0,005
0,029	0,000	0,035	0,000

Figure 20 D3,D4

FWD transient thermal impedance as a function of pulse width

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



At
 $D = t_p / T$
 phase-change material Thermal grease
 $R_{th(j-s)} = 1,17$ K/W $R_{th(j-s)} = 1,36$ K/W
 FWD thermal model values

phase-change material		Thermal grease	
R (K/W)	Tau (s)	R (K/W)	Tau (s)
0,043	9,803	0,050	9,80
0,101	0,815	0,118	0,82
0,383	0,098	0,445	0,10
0,308	0,026	0,358	0,03
0,233	0,005	0,271	0,01
0,098	0,001	0,114	0,00

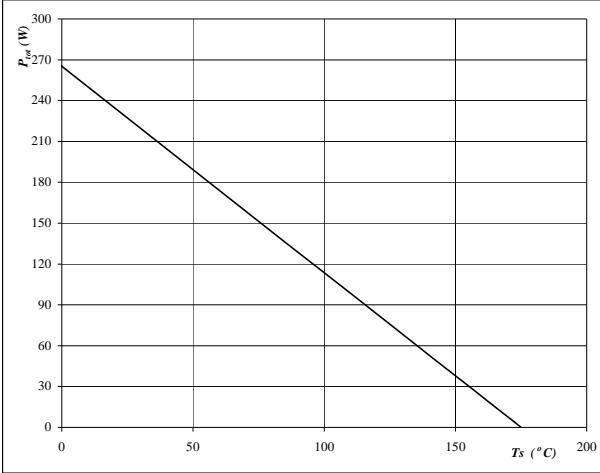


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 21 T1, T2

Power dissipation as a function of heatsink temperature

$P_{tot} = f(T_h)$

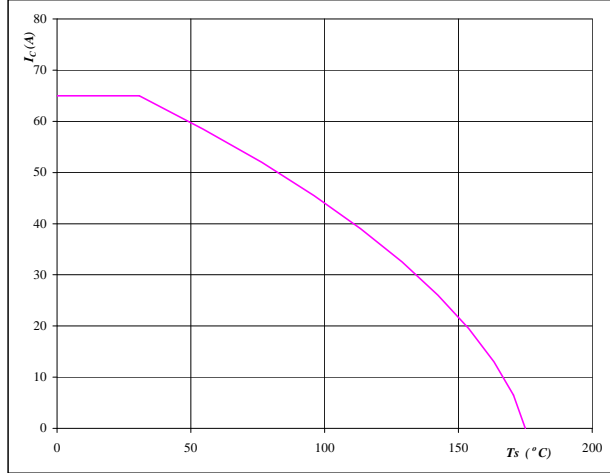


At
 $T_j = 175$ °C

Figure 22 T1, T2

Collector current as a function of heatsink temperature

$I_C = f(T_h)$

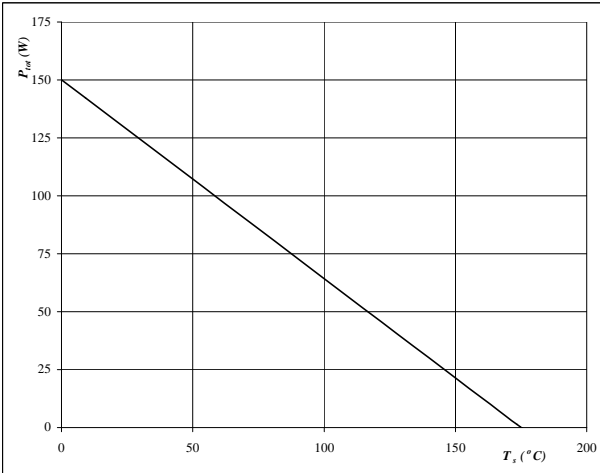


At
 $T_j = 175$ °C
 $V_{GE} = 15$ V

Figure 23 D3,D4

Power dissipation as a function of heatsink temperature

$P_{tot} = f(T_s)$

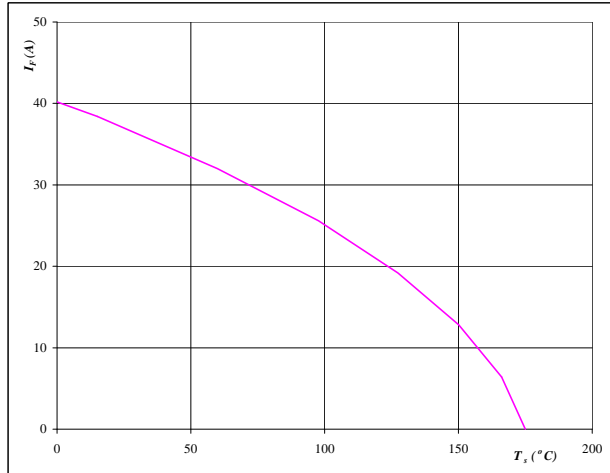


At
 $T_j = 175$ °C

Figure 24 D3,D4

Forward current as a function of heatsink temperature

$I_F = f(T_s)$



At
 $T_j = 175$ °C

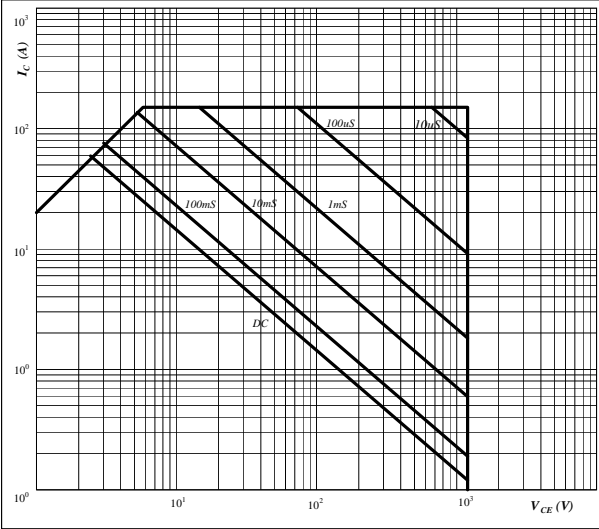


Boost Switch T1,T2 / Boost Diode D3,D4

Figure 25 T1, T2

Safe operating area as a function of collector-emitter voltage

$I_C = f(V_{CE})$

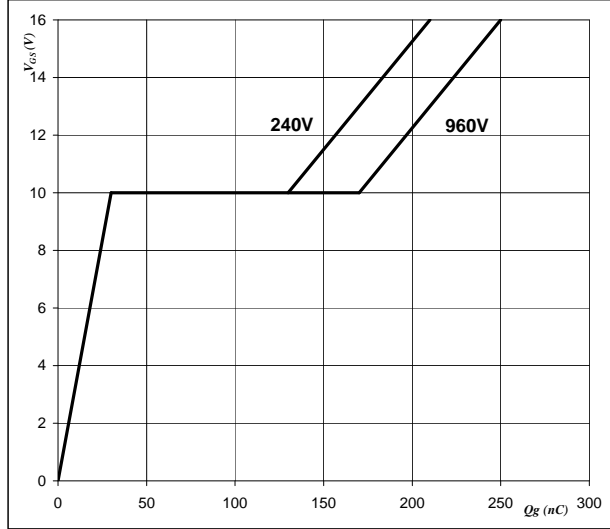


At
 $D =$ single pulse
 $T_s =$ 80 °C
 $V_{GE} =$ 15 V
 $T_j = T_{jmax}$ °C

Figure 26 T1, T2

Gate voltage vs Gate charge

$V_{GE} = f(Q_g)$

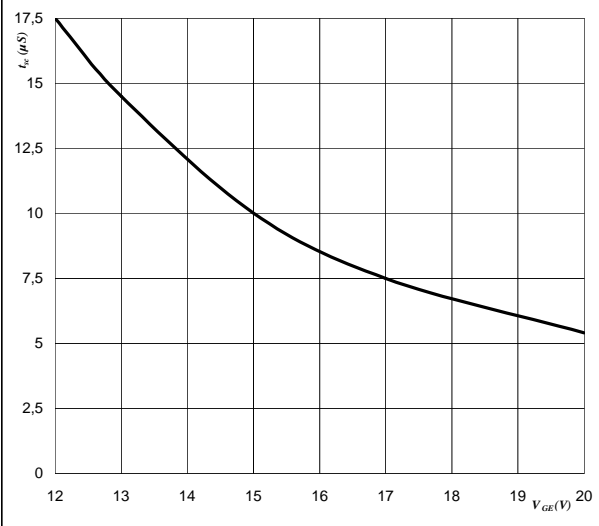


At
 $I_C =$ 50 A

Figure 27 T1, T2

Short circuit withstand time as a function of gate-emitter voltage

$t_{sc} = f(V_{GE})$

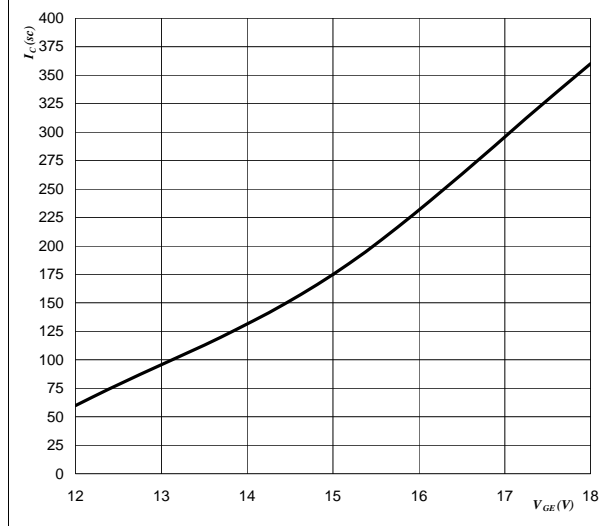


At
 $V_{CE} =$ 600 V
 $T_j \leq$ 150 °C

Figure 28 T1, T2

Typical short circuit collector current as a function of gate-emitter voltage

$V_{GE} = f(I_C)$



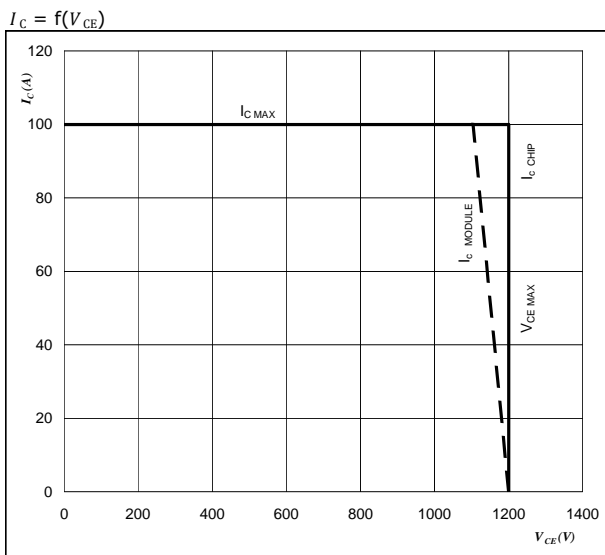
At
 $V_{CE} \leq$ 600 V
 $T_j =$ 25 °C



Boost Switch T1,T2 / Boost Diode D3,D4

Figure 29 T1, T2

Reverse bias safe operating area



At

$T_{vj} \leq 150$ °C

$I_{C\ MAX} = 100$ A

$V_{CE\ MAX} = 1200$ V

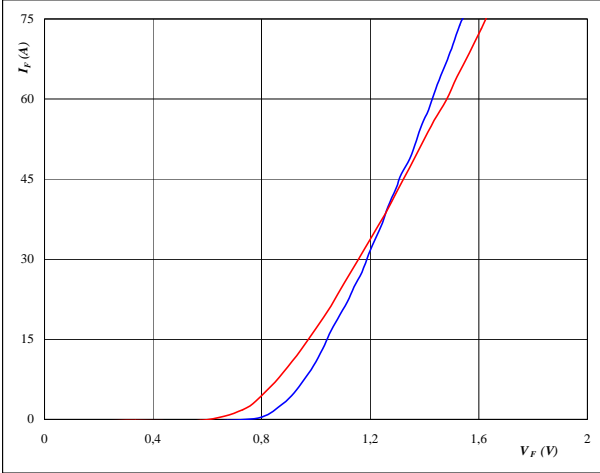


Bypass Diode D5,D6 / Boost Sw. Protection Diode D1,D2

Figure 1 D1,D2,D5,D6

Typical diode forward current as a function of forward voltage

$I_F = f(V_F)$

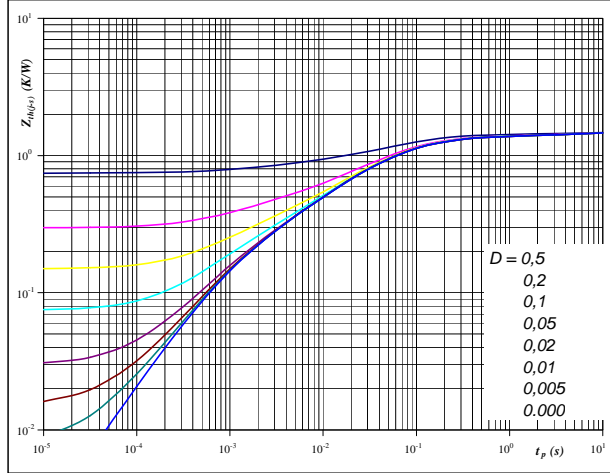


At
 $T_j = 25/125 \text{ } ^\circ\text{C}$
 $t_p = 250 \text{ } \mu\text{s}$

Figure 2 D1,D2,D5,D6

Diode transient thermal impedance as a function of pulse width

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

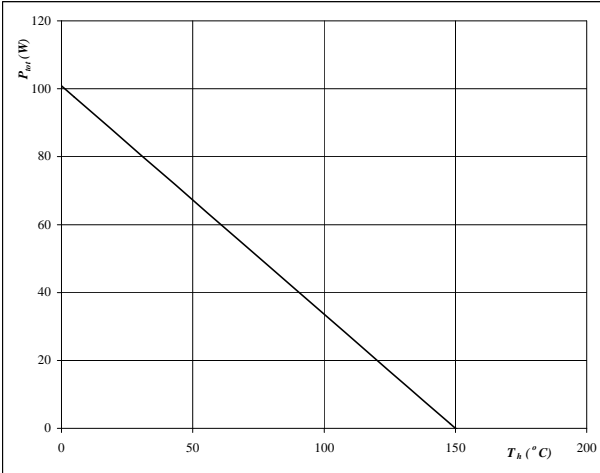


At
 $D = t_p / T$
 phase-change material Thermal grease
 $R_{th(j-s)} = 1,49 \text{ K/W}$ $R_{th(j-s)} = 1,73 \text{ K/W}$

Figure 3 D1,D2,D5,D6

Power dissipation as a function of heatsink temperature

$P_{tot} = f(T_s)$

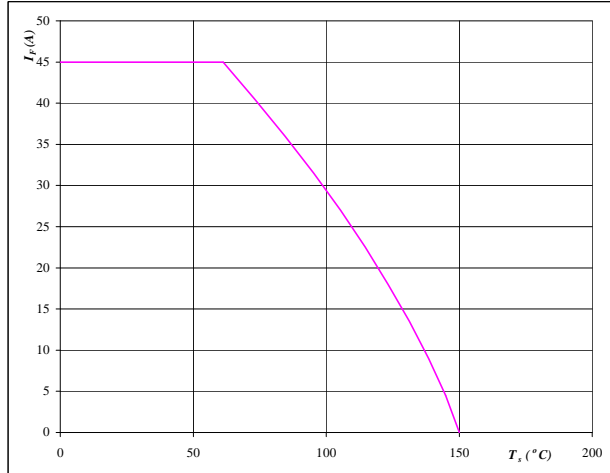


At
 $T_j = 150 \text{ } ^\circ\text{C}$

Figure 4 D1,D2,D5,D6

Forward current as a function of heatsink temperature

$I_F = f(T_s)$



At
 $T_j = 150 \text{ } ^\circ\text{C}$

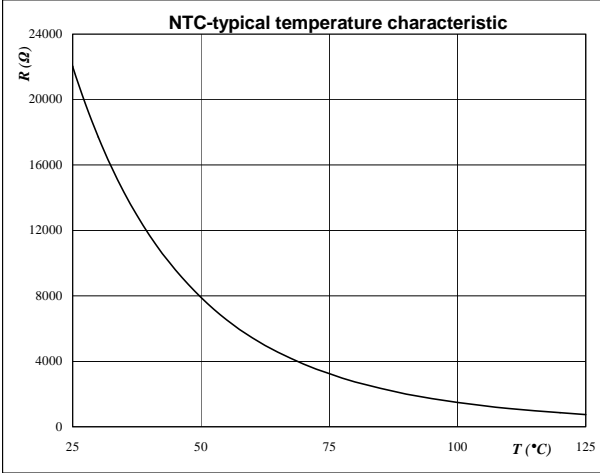


Thermistor

Figure 1 Thermistor

**Typical NTC characteristic
as a function of temperature**

$$R_T = f(T)$$



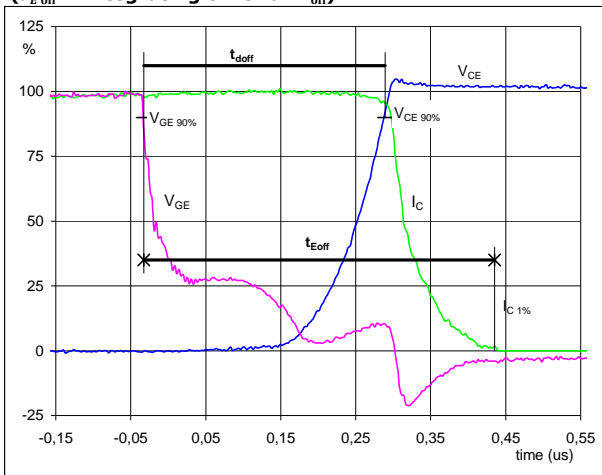
Switching Definitions Boost

General conditions

T_j	=	125 °C
R_{gon}	=	4 Ω
R_{goff}	=	4 Ω

Figure 1 T1, T2

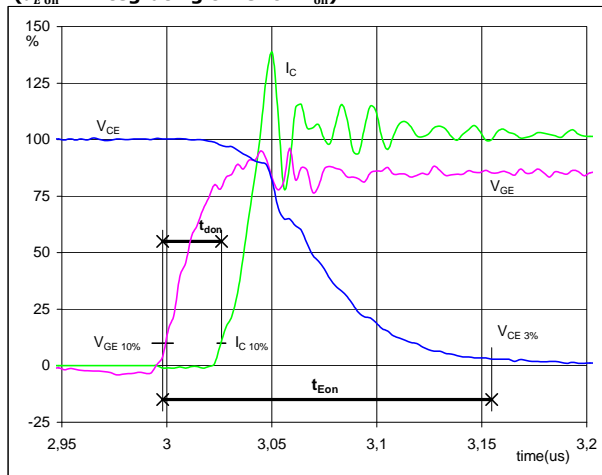
Turn-off Switching Waveforms & definition of t_{doff} , t_{Eoff}
 (t_{Eoff} = integrating time for E_{off})



V_{GE} (0%) =	0	V
V_{GE} (100%) =	15	V
V_C (100%) =	700	V
I_C (100%) =	40	A
t_{doff} =	0,320	μ s
t_{Eoff} =	0,468	μ s

Figure 2 T1, T2

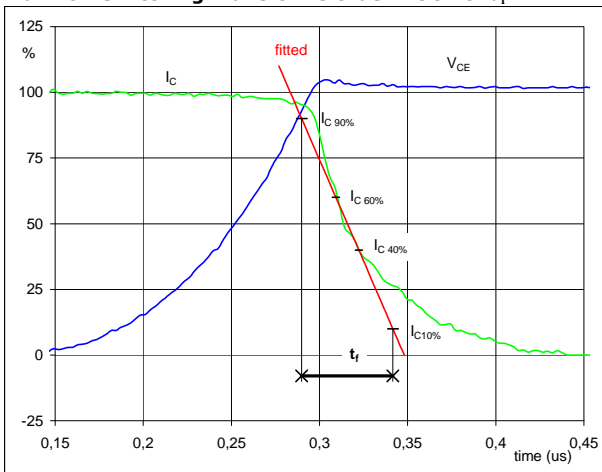
Turn-on Switching Waveforms & definition of t_{donr} , t_{Eon}
 (t_{Eon} = integrating time for E_{on})



V_{GE} (0%) =	0	V
V_{GE} (100%) =	15	V
V_C (100%) =	700	V
I_C (100%) =	40	A
t_{donr} =	0,027	μ s
t_{Eon} =	0,157	μ s

Figure 3 T1, T2

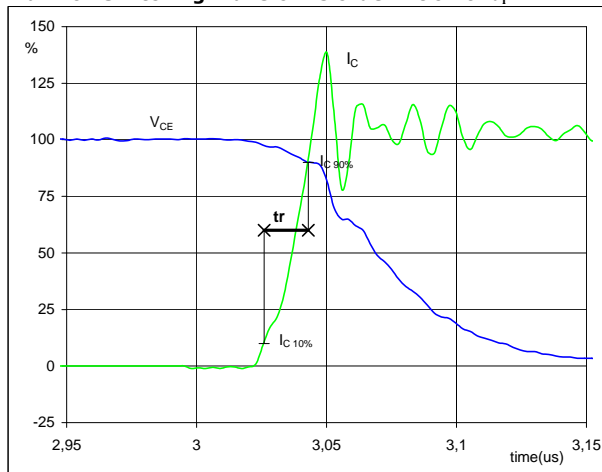
Turn-off Switching Waveforms & definition of t_f



V_C (100%) =	700	V
I_C (100%) =	40	A
t_f =	0,057	μ s

Figure 4 T1, T2

Turn-on Switching Waveforms & definition of t_r

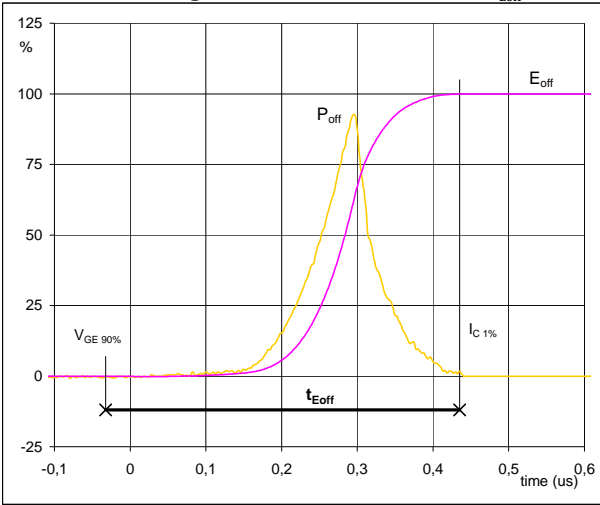


V_C (100%) =	700	V
I_C (100%) =	40	A
t_r =	0,017	μ s



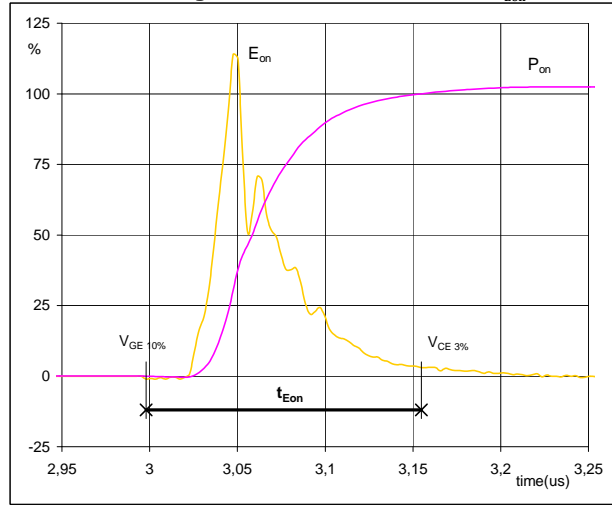
Switching Definitions Boost

Figure 5 T1, T2
Turn-off Switching Waveforms & definition of t_{Eoff}



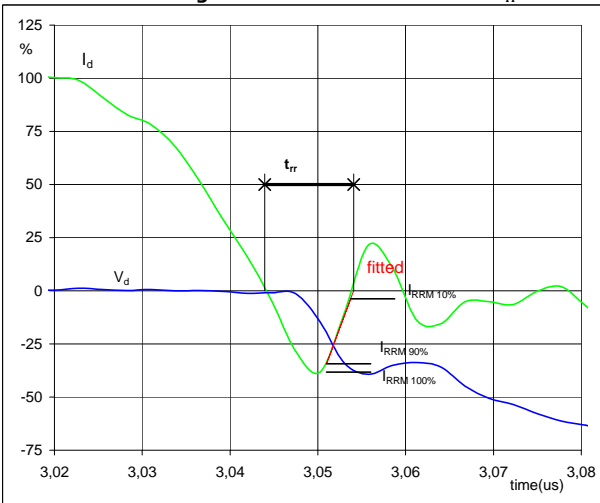
$P_{off} (100\%) = 28,02 \text{ kW}$
 $E_{off} (100\%) = 2,43 \text{ mJ}$
 $t_{Eoff} = 0,468 \text{ } \mu\text{s}$

Figure 6 T1, T2
Turn-on Switching Waveforms & definition of t_{Eon}



$P_{on} (100\%) = 28,02 \text{ kW}$
 $E_{on} (100\%) = 1,22 \text{ mJ}$
 $t_{Eon} = 0,1567 \text{ } \mu\text{s}$

Figure 7 T1, T2
Turn-off Switching Waveforms & definition of t_{rr}



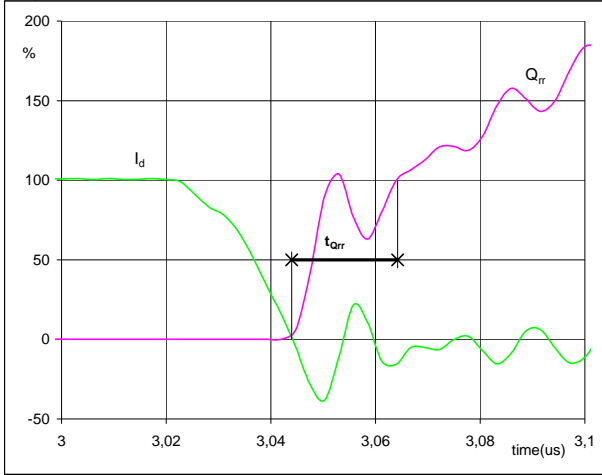
$V_d (100\%) = 700 \text{ V}$
 $I_d (100\%) = 40 \text{ A}$
 $I_{RRM} (100\%) = -15 \text{ A}$
 $t_{rr} = 0,009 \text{ } \mu\text{s}$



Switching Definitions Boost

Figure 8 D3, D4

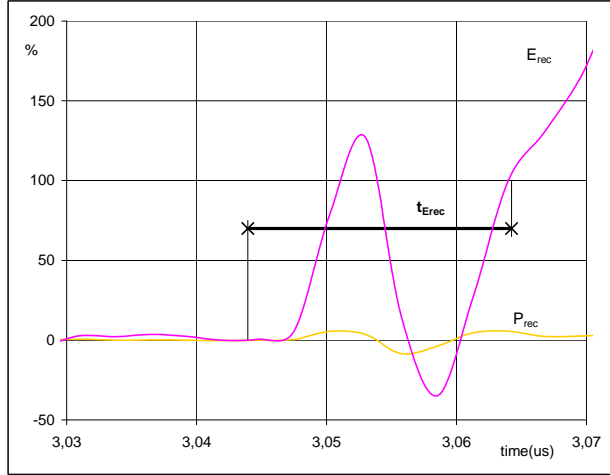
Turn-on Switching Waveforms & definition of t_{Qrr}
(t_{Qrr} = integrating time for Q_{rr})



I_d (100%) =	40	A
Q_{rr} (100%) =	0,21	μC
t_{Qrr} =	0,02	μs

Figure 9 D3, D4

Turn-on Switching Waveforms & definition of t_{Erec}
(t_{Erec} = integrating time for E_{rec})



P_{rec} (100%) =	28,02	kW
E_{rec} (100%) =	0,07	mJ
t_{Erec} =	0,02	μs

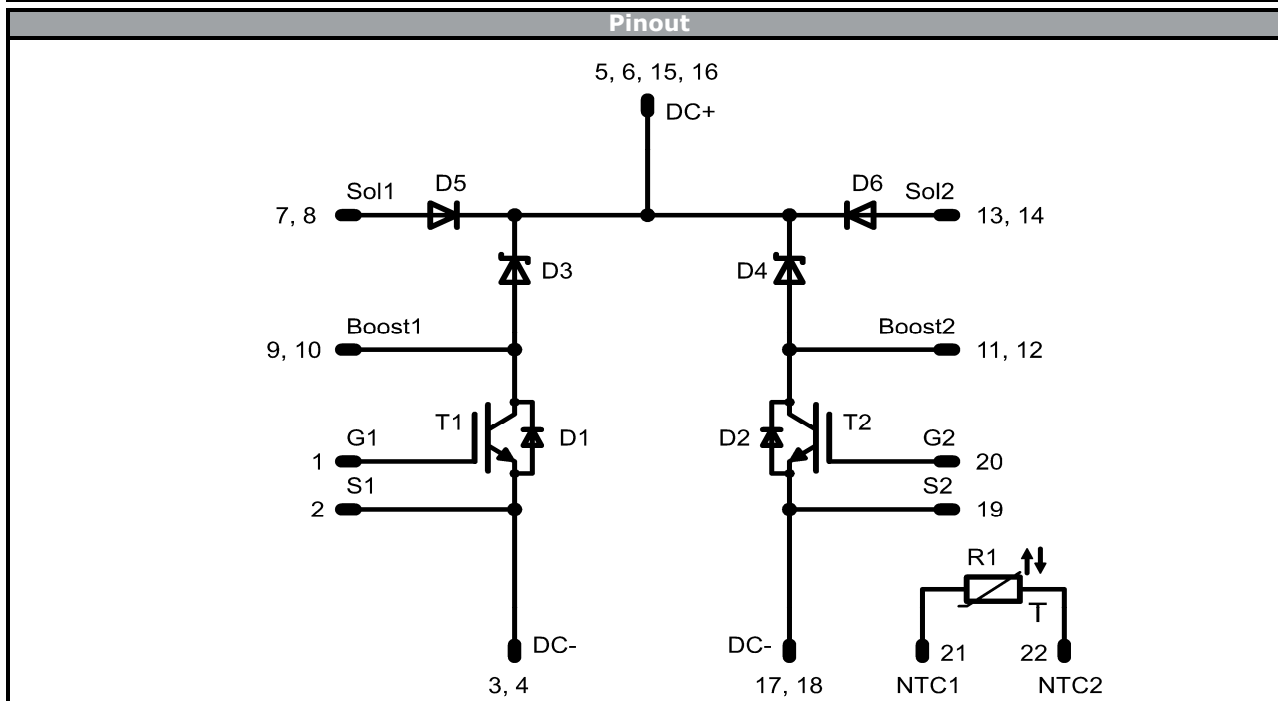


Ordering Code and Marking - Outline - Pinout

Ordering Code & Marking							
Version				Ordering Code			
without thermal paste 12mm housing solder pins				V23990-P629-L43-PM			
with thermal paste 12mm housing solder pins				V23990-P629-L43-/3/-PM			
without thermal paste 12mm housing Press-fit pins				V23990-P629-L43Y-PM			
with thermal paste 12mm housing Press-fit pins				V23990-P629-L43Y-/3/-PM			
	Text	Vinco	Date code	Name & Ver	UL	Lot	Serial
		Vinco	WYYY	TTTTTTTV	UL	LLLLL	SSSS
	Datamatrix	Type&Ver	Lot number	Serial	Date code		
		TTTTTTTV	LLLLL	SSSS	WYYY		

Outline							
Pin table				Pin table			
Pin	X	Y	Function	Pin	X	Y	Function
1	0	22,5	G1	20	0	0	G2
2	2,9	22,5	S1	21	0	8	NTC1
3	8,3	22,5	DC-	22	0	14,5	NTC2
4	10,8	22,5	DC-				
5	19,6	22,5	DC+				
6	22,1	22,5	DC+				
7	29,1	22,5	Sol1				
8	32	22,5	Sol1				
9	33,5	17,8	Boost1				
10	33,5	15,3	Boost1				
11	33,5	7,2	Boost2				
12	33,5	4,7	Boost2				
13	32	0	Sol2				
14	29,1	0	Sol2				
15	22,1	0	DC+				
16	19,6	0	DC+				
17	10,8	0	DC-				
18	8,3	0	DC-				
19	2,9	0	S2				

Tolerance of pinpositions ±0,5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



Identification					
ID	Component	Voltage	Current	Function	Comment
T1,T2	IGBT	1200 V	50 A	Boost Switch	
D3,D4	FWD	1200 V	15 A	Boost Diode	
D1,D2	FWD	1600 V	25 A	Boost Sw. Protection Diode	
D5,D6	FWD	1600 V	25 A	Bypass Diode	
R1	NTC			Thermistor	



Packaging instruction			
Standard packaging quantity (SPQ)	135	>SPQ Standard	<SPQ Sample

Handling instruction
Handling instructions for <i>flow</i> 0 packages see vincotech.com website.

Package data
Package data for <i>flow</i> 0 packages see vincotech.com website.

Document No.:	Date:	Modification:	Pages
V23990-P629-L43x-D6-14	27 May. 2020	Update Isolation Voltage	2

DISCLAIMER

The information, specifications, procedures, methods and recommendations herein (together "information") are presented by Vincotech to reader in good faith, are believed to be accurate and reliable, but may well be incomplete and/or not applicable to all conditions or situations that may exist or occur. Vincotech reserves the right to make any changes without further notice to any products to improve reliability, function or design. No representation, guarantee or warranty is made to reader as to the accuracy, reliability or completeness of said information or that the application or use of any of the same will avoid hazards, accidents, losses, damages or injury of any kind to persons or property or that the same will not infringe third parties rights or give desired results. It is reader's sole responsibility to test and determine the suitability of the information and the product for reader's intended use.

LIFE SUPPORT POLICY

Vincotech products are not authorised for use as critical components in life support devices or systems without the express written approval of Vincotech.

As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
- 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.