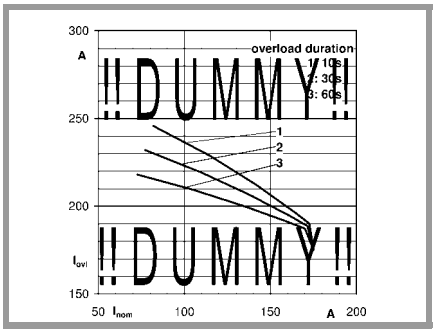

Trench IGBT Modules

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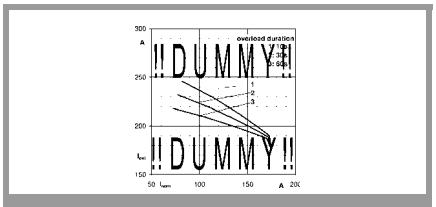
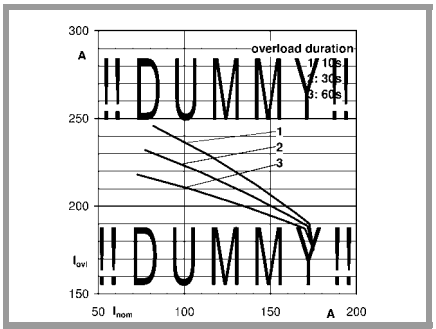


Absolute Maximum Ratings				
Symbol	**Conditions**		**Values**	**Unit**
IGBT				
V_{CES}			1200	V
I_C	T_j = 150 °C	T_s = 25 °C		A
		T_s = 70 °C		A
I_{Cnom}			300	A
I_{CRM}	I_{CRM} = 2xI_{Cnom}		600	A
V_{GES}			-20 ... 20	V
t_{psc}	V_{CC} = 600 V V_{GE} = (XXXXXfailXXXXX) V V_{CES} ≤ 1200 V	T_j = 125 °C	10	µs
T_j			-40 ... 150	°C
Inverse diode				
I_F	T_j = 150 °C	T_s = 25 °C	258	A
		T_s = 80 °C	175	A
I_{Fnom}			300	A
I_{FRM}	I_{FRM} = 2xI_{Fnom}		600	A
I_{FSM}	t_p = 10 ms, sin 180°, T_j = 25 °C		2592	A
T_j			-40 ... 150	°C
Module				
$I_{t(RMS)}$			400	A
T_{stg}			-40 ... 125	°C
V_{isol}	AC sinus 50 Hz, t = 1 min		2500	V

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
IGBT						
$V_{CE(sat)}$	I_C = 300 A V_{GE} = 15 V chiplevel	T_j = 25 °C		1.65	2.05	V
		T_j = 125 °C		1.95	2.40	V
V_{CE0}		T_j = 25 °C		1	1.2	V
		T_j = 125 °C		0.9	1.1	V
r_{CE}	V_{GE} = 15 V	T_j = 25 °C		2.2	2.8	mΩ
		T_j = 125 °C		3.5	4.3	mΩ
$V_{GE(th)}$	V_{GE}=V_{CE}, I_C = 12 mA		5	5.8	6.5	V
I_{CES}	V_{GE} = 0 V	T_j = 25 °C		0.1	0.3	mA
	V_{CE} = 1200 V	T_j = 125 °C				mA
C_{ies}	V_{CE} = 25 V V_{GE} = 0 V	f = 1 MHz		21.532		nF
C_{oes}		f = 1 MHz		1.126		nF
C_{res}		f = 1 MHz		0.976		nF
Q_G	V_{GE} = - 8 V...+ 15 V			2400		nC
R_{Gint}	T_j = 25 °C			2.5		Ω
$t_{d(on)}$	V_{CC} = 600 V I_C = 300 A $R_{G\ on}$ = 3 Ω					ns
t_r						ns
E_{on}				29		mJ
$t_{d(off)}$						ns
t_f						ns
E_{off}				46		mJ
$R_{th(j-s)}$	per IGBT					K/W



Trench IGBT Modules

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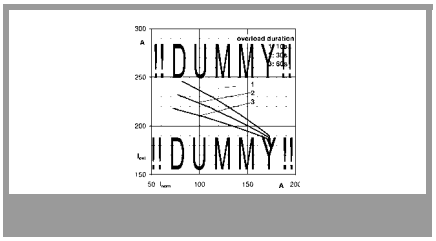
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.



Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
Inverse diode						
$V_F = V_{EC}$	I_F = 300 A V_{GE} = 0 V chip	T_j = 25 °C		2.5	3.0	V
		T_j = 125 °C		2.3	2.8	V
V_{F0}		T_j = 25 °C		1.1	1.45	V
		T_j = 125 °C		0.85	1.2	V
r_F		T_j = 25 °C		4.5	5.3	mΩ
		T_j = 125 °C		4.8	5.5	mΩ
I_{RRM}	I_F = 300 A					A
Q_{rr}	V_{GE} = -15 V					µC
E_{rr}	V_{CC} = 600 V					mJ
$R_{th(j-s)}$	per diode				0.19	K/W
Module						
L_{CE}					15	nH
$R_{CC'+EE'}$	terminal-chip	T_s = 25 °C		1.35		mΩ
		T_s = 125 °C		1.75		mΩ
M_s	to heat sink (M4)		2		3	Nm
M_t		to terminals M6	4		5	Nm
						Nm
w					310	g
Temperature sensor						
R_{100}	T_{Sensor} = 100 °C (R_{25} = 5 kΩ)			339		Ω
$B_{100/125}$	$R_{(T)} = R_{100}\exp[B_{100/125}(1/T-1/373)]$; T[K];			4096		K