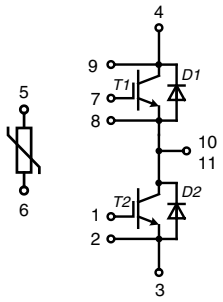
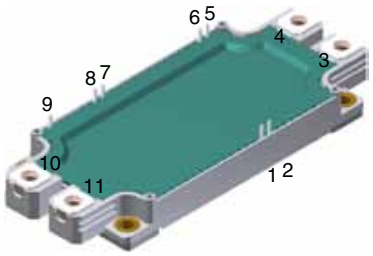
IGBT Modules
XPT IGBT

I_{C80} = 300 A
V_{CES} = 1200 V
$V_{CE(sat)\ typ.}$ = 2.0 V





IGBTs			
Symbol	**Conditions**	**Maximum Ratings**	
V_{CES}	T_{VJ} = 25°C to 125°C	1200	V
V_{GES}		± 20	V
I_{C80}	T_C = 80°C	300	A
RBSOA	R_G = 1.6 Ω; T_{VJ} = 125°C Clamped inductive load; L = 100 µH	I_{CM} = 600 $V_{CEK} \leq V_{CES}$	A
t_{SC} (SCSOA)	V_{CE} = 900 V; V_{GE} = ±15 V; R_G = 2.4 Ω T_{VJ} = 125°C; non-repetitive; $V_{CEmax} \leq V_{CES}$	10	µs
P_{tot}	T_C = 25°C	1.5	kW

Symbol	Conditions		Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{CE(sat)}$	I_C = 300 A; V_{GE} = 15 V	T_{VJ} = 25°C T_{VJ} = 125°C		2.0 2.3	2.2	V V
$V_{GE(th)}$	I_C = 12 mA; V_{GE} = V_{CE}		5.4		6.5	V
I_{CES}	V_{CE} = V_{CES}; V_{GE} = 0 V	T_{VJ} = 25°C T_{VJ} = 125°C		0.1 4	0.7	mA mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V				1.0	µA
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off}	Inductive load, T_{VJ} = 125°C V_{CE} = 600 V; I_C = 300 A V_{GE} = ±15 V; R_G = 2.4 Ω			70 40 250 100 28 32		ns ns ns ns mJ mJ
Q_{Gon}	V_{CE} = 600 V; V_{GE} = 15 V; I_C = 500 A			1.5		µC
R_{thJC}					0.085	K/W

Features
- XPT IGBT technology
- low saturation voltage
- low switching losses
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- ultra fast free wheeling diodes
- solderable pins for PCB mounting
- package with copper base plate

Advantages
- space savings
- reduced protection circuits
- package designed for wave soldering

Typical Applications
- AC motor control
- AC servo and robot drives
- power supplies

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Diodes

Symbol	Conditions	Maximum Ratings	
I_{F80}	T_C = 80°C	300	A
I_{FRM}	t_p = 1 ms	600	A

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
V_F	I_F = 300 A; V_{GE} = 0 V; T_{VJ} = 25°C			2.3	V
I_{RM}	I_F = 300 A; di_F/dt = 2300 A/µs; T_{VJ} = 125°C; V_R = 800 V		135		A
R_{thJC}			0.14		K/W

Temperature Sensor NTC

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
R_{25}	T = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$			3375		K

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-40...+125	°C
T_{JM}		+150	°C
T_{stg}		-40...+125	°C
V_{ISO}	I_{ISOL} ≤ 1 mA; 50/60 Hz	3400	V~
M_d	Mounting torque (M5)	3 - 6	Nm
	Terminal connection torque (M6)	3 - 6	Nm

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
$R_{therm\text{-}chip}$ *)	Resistance terminal to chip		0.55		mΩ
R_{thCH}	with heatsink compound		0.03		K/W
Weight			350		g

*) $V = V_{CEsat} + 2x\ R_{therm\text{-}chip} \cdot I_C$ resp. $V = V_F + 2x\ R \cdot I_F$

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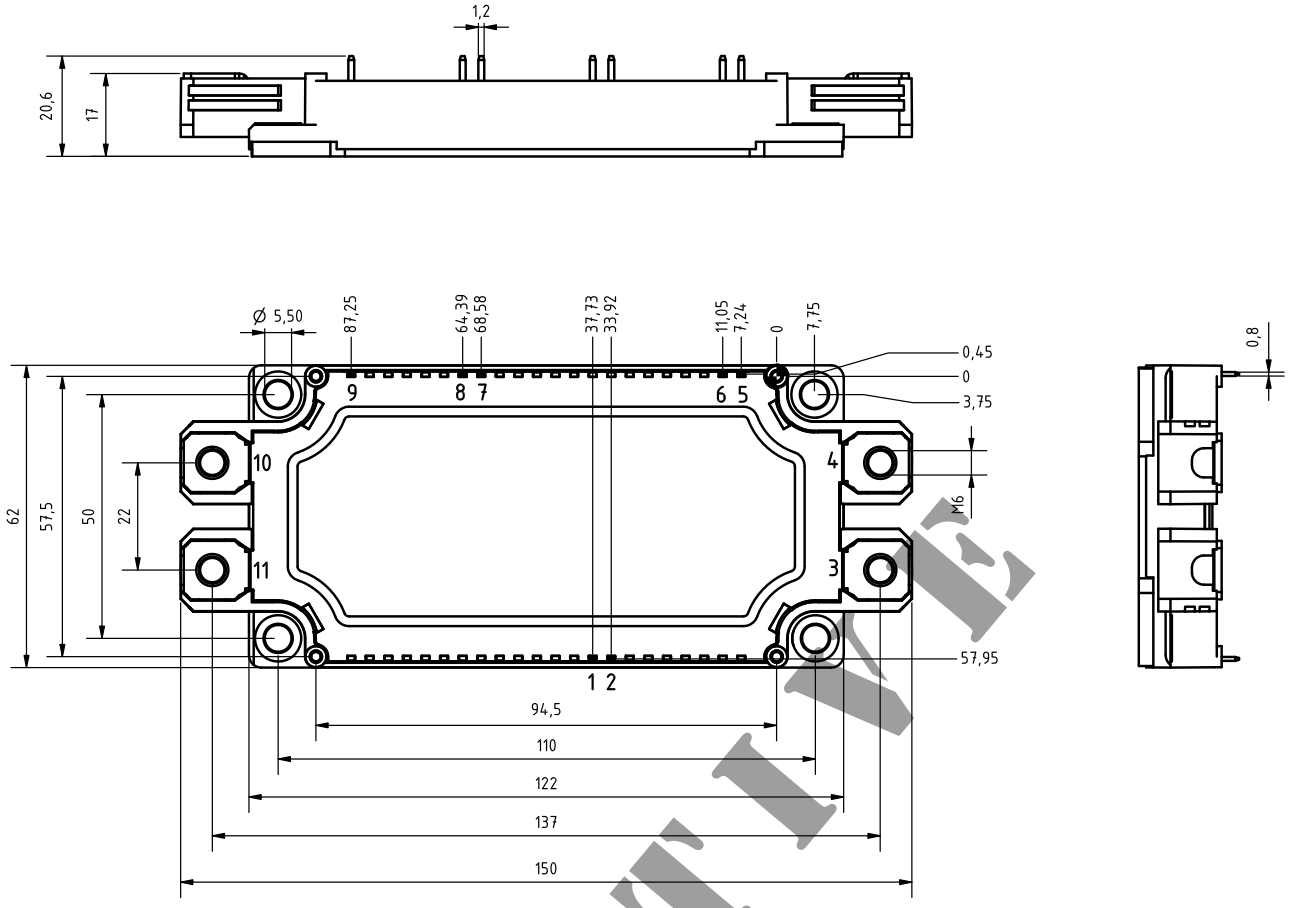
Dimensions in mm (1 mm = 0.0394")



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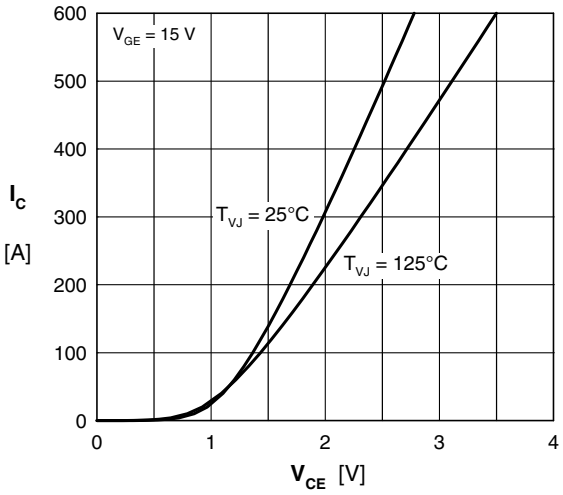

Fig. 1 Typ. output characteristics

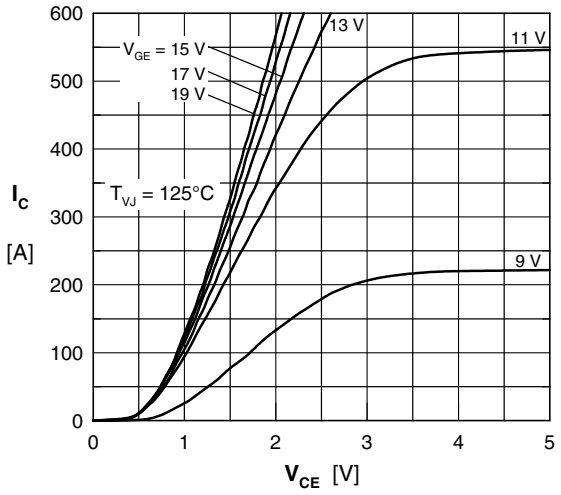

Fig. 2 Typ. output characteristics

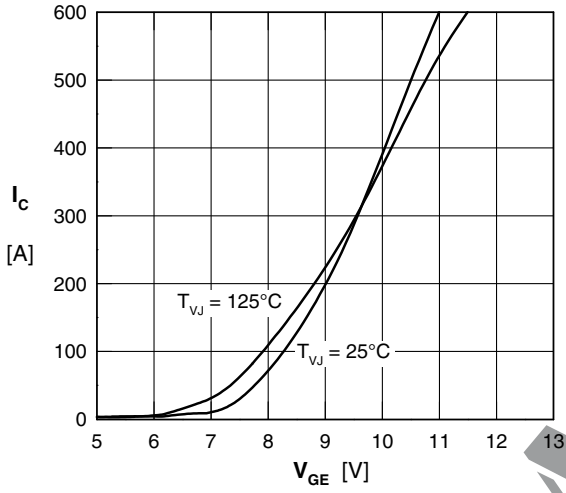

Fig. 3 Typ. tranfer characteristics

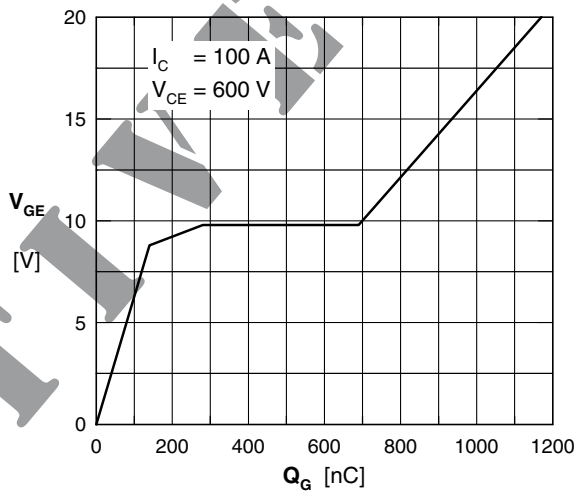

Fig. 4 Typ. turn-on gate charge

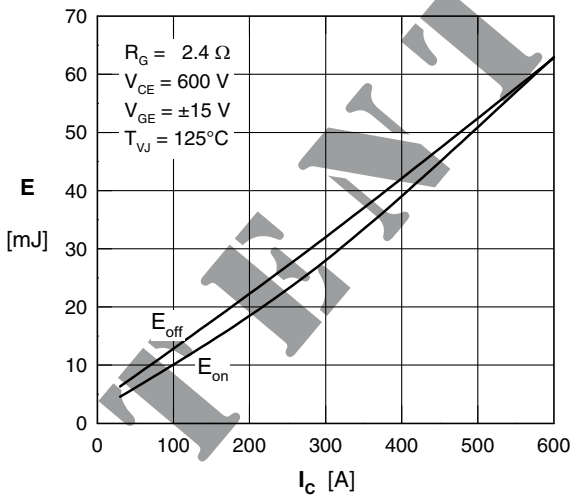

Fig. 5 Typ. switching energy vs. collector current

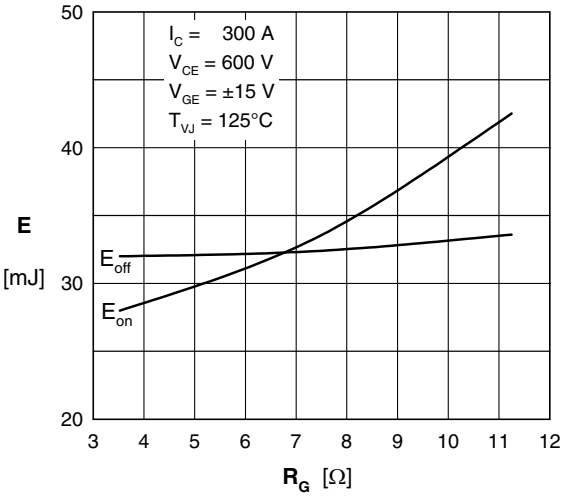

Fig. 6 Typ. switching energy vs. gate resistance

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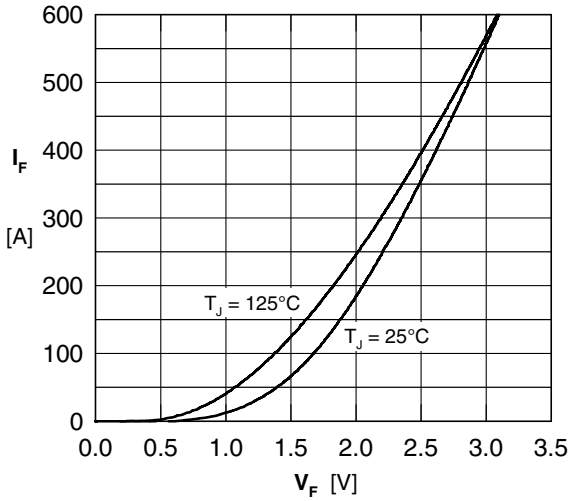

Fig. 7 Typ. forward characteristics of free wheeling diode

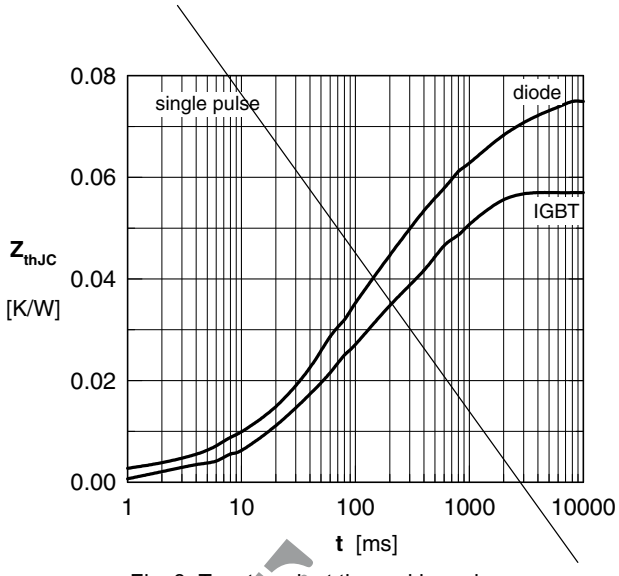

Fig. 8 Typ. transient thermal impedance

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