

Features

- High Speed IGBT in NPT Technology
- Low Switching Losses
- High Short Circuit Capability(10us)
- Including Ultra Fast & Soft Recovery Anti-parallel FWD
- Low Inductance
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Applications

- High Frequency Drivers
- Solar Inverters
- UPS(Uninterruptible Power Supplies)
- Electric Welding Machine

Maximum Ratings

- Maximum Junction Temperature : 150°C
- Operating Junction Temperature Range : -40°C to +150°C
- Storage Temperature Range: -40°C to +125°C
- IGBT Thermal Resistance: 0.185 °C/W Junction to Case
- Diode Thermal Resistance: 0.3 °C/W Junction to Case
- Conductive Grease Applied Thermal Resistance: 0.05°C/W Junction to Case-To-Sink

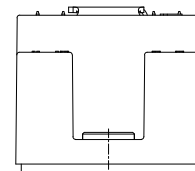
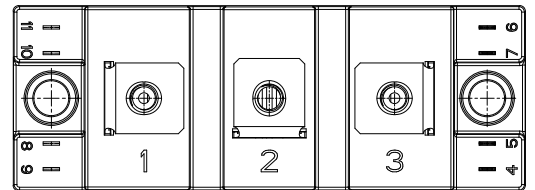
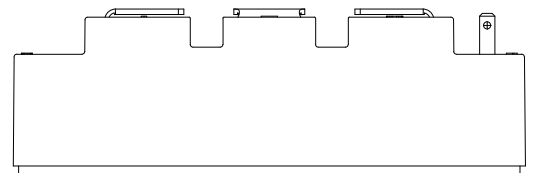
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	1200	V
DC Collector Current	I_C	$T_C=25^\circ\text{C}$	150
		$T_C=80^\circ\text{C}$	100
Peak Collector Current Repetitive ⁽¹⁾ @ $T_j=125^\circ\text{C}$	I_{CM}	200	A
Diode Continuous Forward Current @ $T_j=125^\circ\text{C}$	I_F	100	A
Isolation Voltage (All Terminals Shorted)@ $f=50\text{Hz}$, 1min	V_{iso}	3000	V
Gate-Emitter Voltage	V_{GE}	± 20	V
Power Terminals Screw:M5	Mounting	2.5~5	N*m
Mounting Screw:M6	Torque	3~5	N*m
Maximum Power Dissipation (IGBT)	P_D	$T_C=25^\circ\text{C}$	675
		$T_{jmax}=150^\circ\text{C}$	W
Weight of Module	G	155	g

Note:

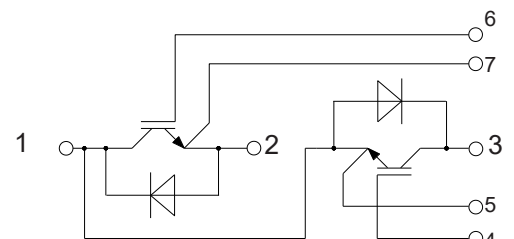
1. Repetitive Rating: Pulse width limited by max. junction temperature

IGBT Modules 1200V 100A

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Circuit Diagram



Electrical Characteristics of IGBT @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=0.25mA$	1200			V
Collector Leakage Current	I_{CES}	$V_{CE}=V_{CES}, V_{GE}=0V$			0.2	mA
		$V_{CE}=V_{CES}, V_{GE}=0V, T_J=125^\circ C$			1	
Gate Leakage Current	I_{GES}	$V_{CE}=0V, V_{GE}=\pm 20V$	-400		400	nA
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{CE}=V_{GE}, I_C=4mA$	5	5.8	6.6	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=100A$		3.0		V
		$V_{GE}=15V, I_C=100A, T_J=125^\circ C$		3.8		
Dynamic Characteristics						
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V, f=1MHz$		6.7		nF
Output Capacitance	C_{oes}			1.1		
Reverse Transfer Capacitance	C_{res}			0.55		
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{CC}=600V, I_C=100A, V_{GE}=\pm 15V, R_G=10\Omega, \text{Inductive load}, T_J=25^\circ C$		102		ns
Rise Time	t_r			79		
Turn-Off Delay Time	$t_{d(off)}$			284		
Fall Time	T_f			24		mJ
Turn-On Switching Loss	E_{on}			11.2		
Turn-Off Switching Loss	E_{off}			2.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{CC}=600V, I_C=100A, V_{GE}=\pm 15V, R_G=10\Omega, \text{Inductive load}, T_J=125^\circ C$		110		ns
Rise Time	t_r			85		
Turn-Off Delay Time	$t_{d(off)}$			325		
Fall Time	T_f			28		mJ
Turn-On Switching Loss	E_{on}			15.6		
Turn-Off Switching Loss	E_{off}			3.8		
Internal Gate Resistance	R_{g-int}			2.5		Ω
SC data	I_{SC}	$T_P \leq 10\mu s, V_{GE}=15V, V_{CC}=600, V_{CEM} \leq 1200V$		700		A

Electrical Characteristics of FWD @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	V_{FM}	$I_F=100A, V_{GE}=0V, T_J=25^\circ C$		1.9		V
		$I_F=100A, V_{GE}=0V, T_J=125^\circ C$		2.0		
Reverse Recovery Charge	Q_{rr}	$I_F=100A, di/dt=1200A/us, V_{rr}=600V, V_{GE}= -15V$	$T_J=25^\circ C$		5.6	uC
			$T_J=125^\circ C$		12.1	
Peak Reverse Recovery Current	I_{rr}		$T_J=25^\circ C$		78	A
			$T_J=125^\circ C$		95	
Reverse Recovery Energy	E_{rec}	$T_J=25^\circ C$		3.2	mJ	
		$T_J=125^\circ C$		6.7		

Curve Characteristics

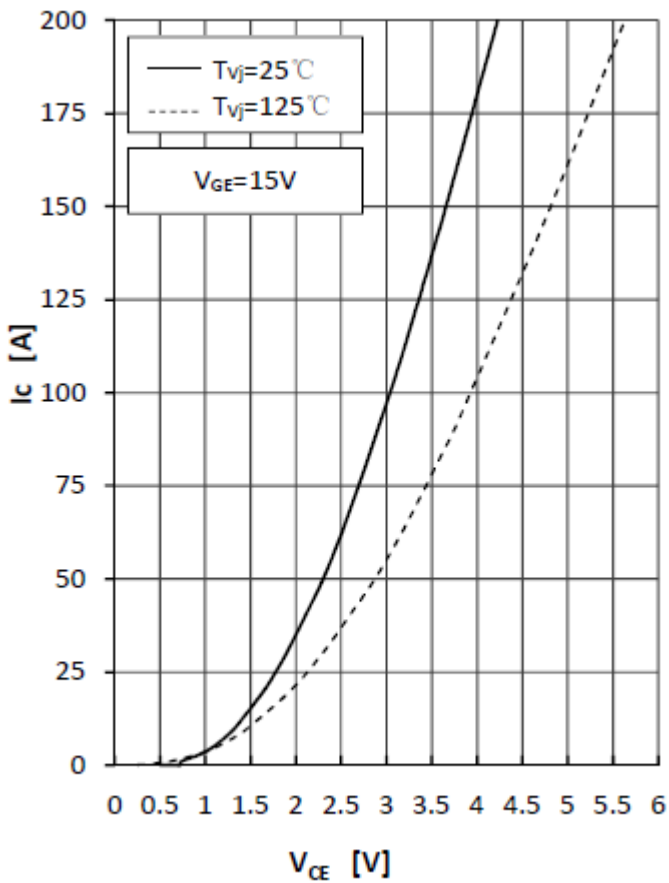


Fig1.IGBT Output Characteristics

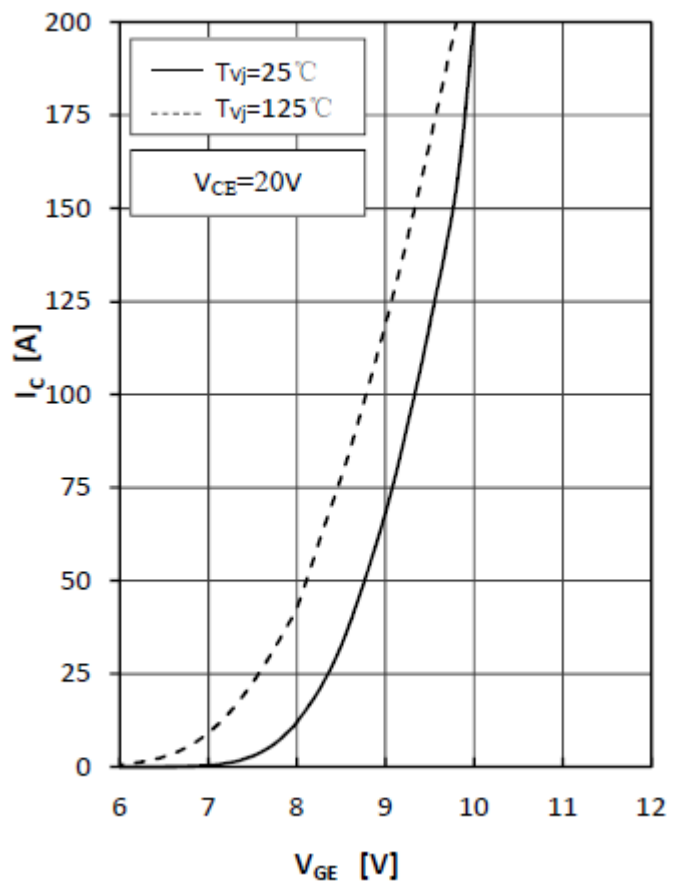


Fig2.IGBT Transfer Characteristics

Curve Characteristics

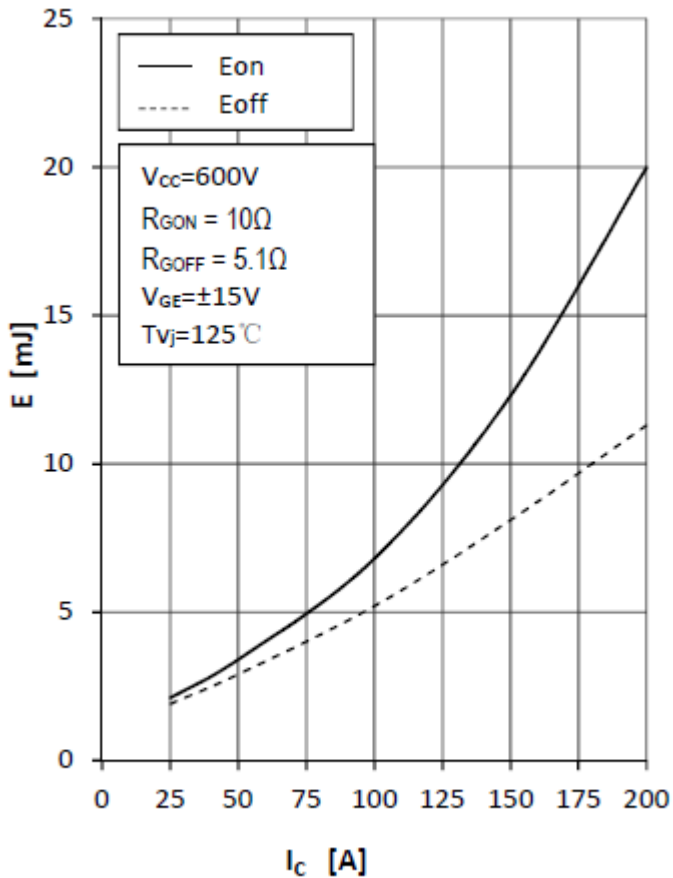


Fig3.IGBT Switching Loss vs.Ic

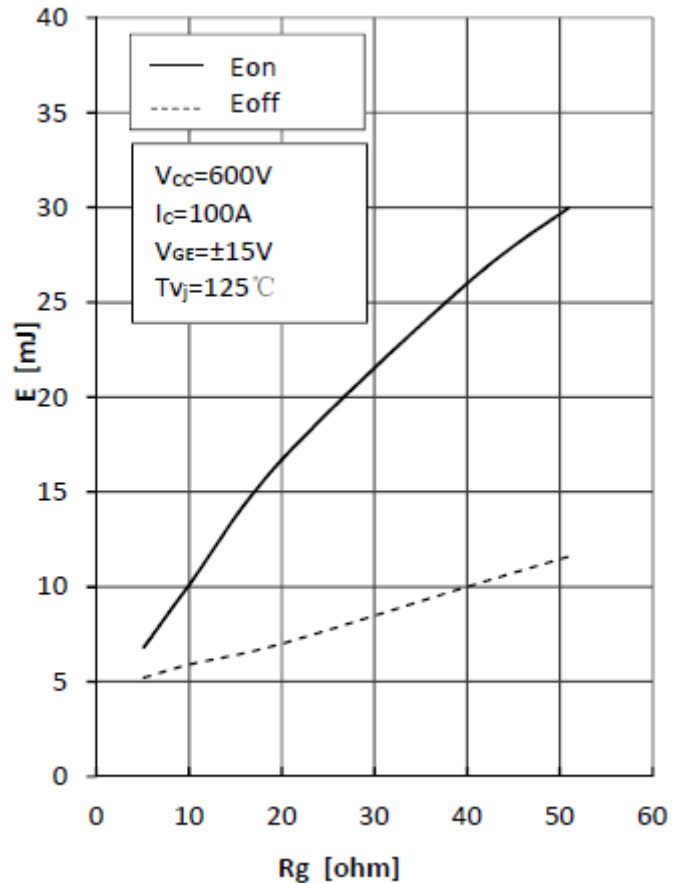


Fig4.IGBT Switching Loss vs.Rg

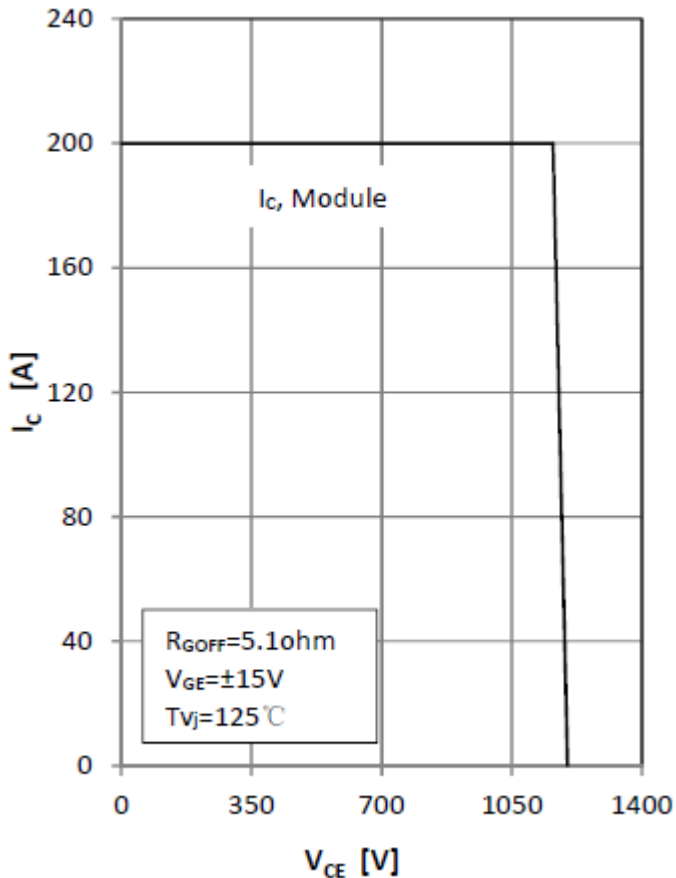


Fig5. RBSOA

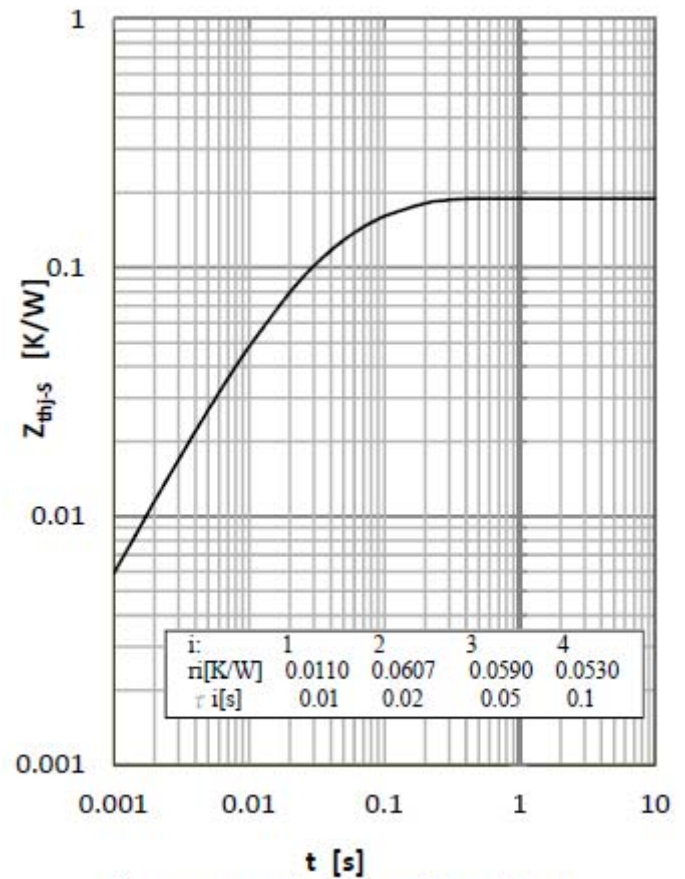


Fig 6. IGBT Transient Thermal Impedance

Curve Characteristics

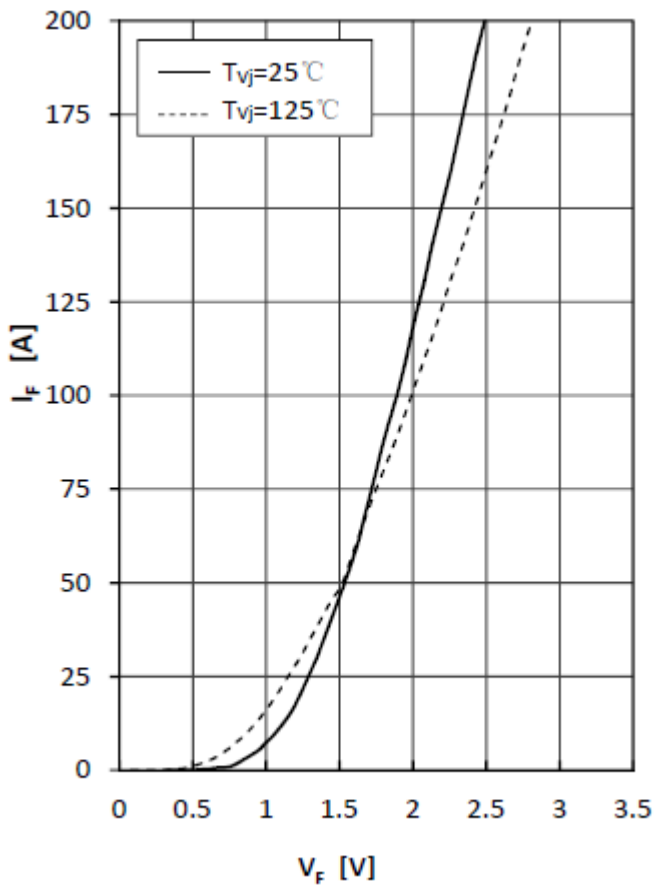


Fig7. Diode Forward Characteristics

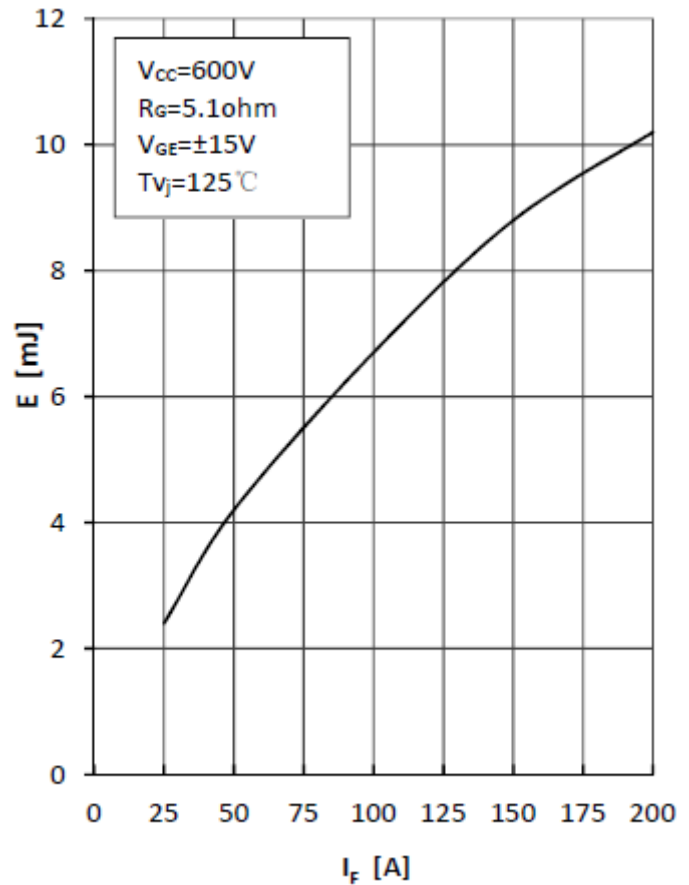


Fig8. Diode Switching Loss(Erec) vs. I_f

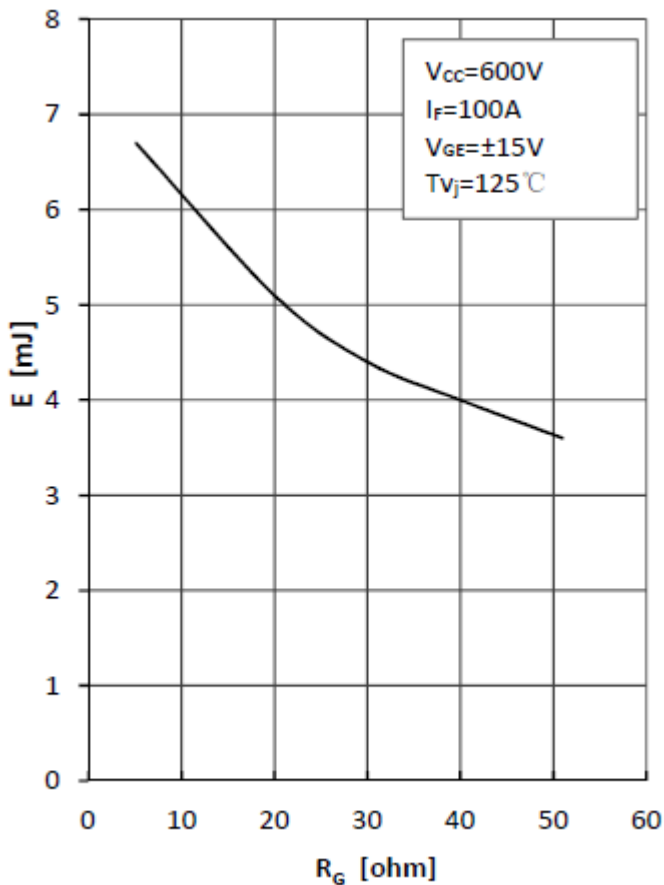


Fig9. Diode Switching Loss(Erec) vs. R_g

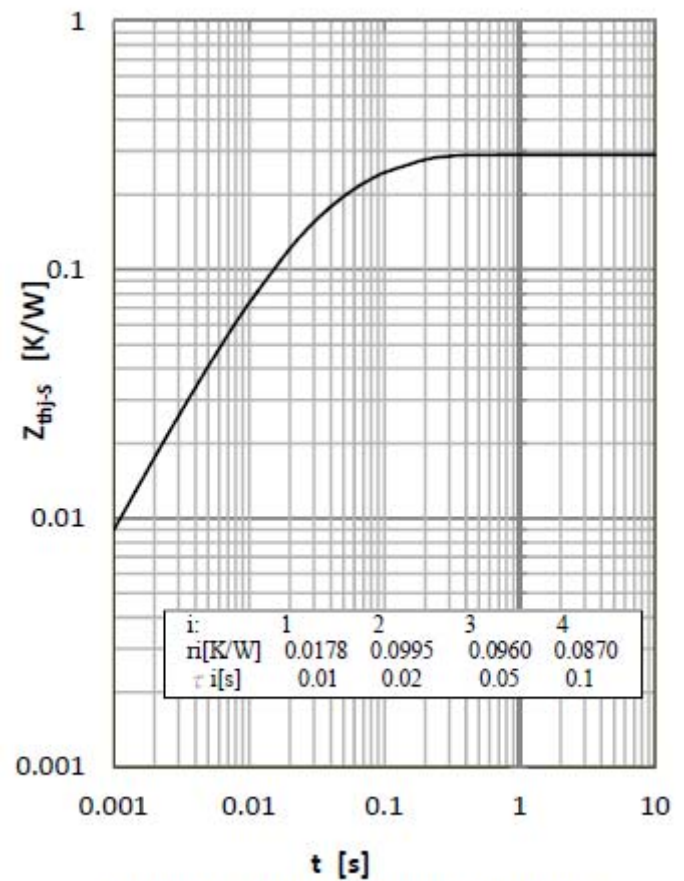
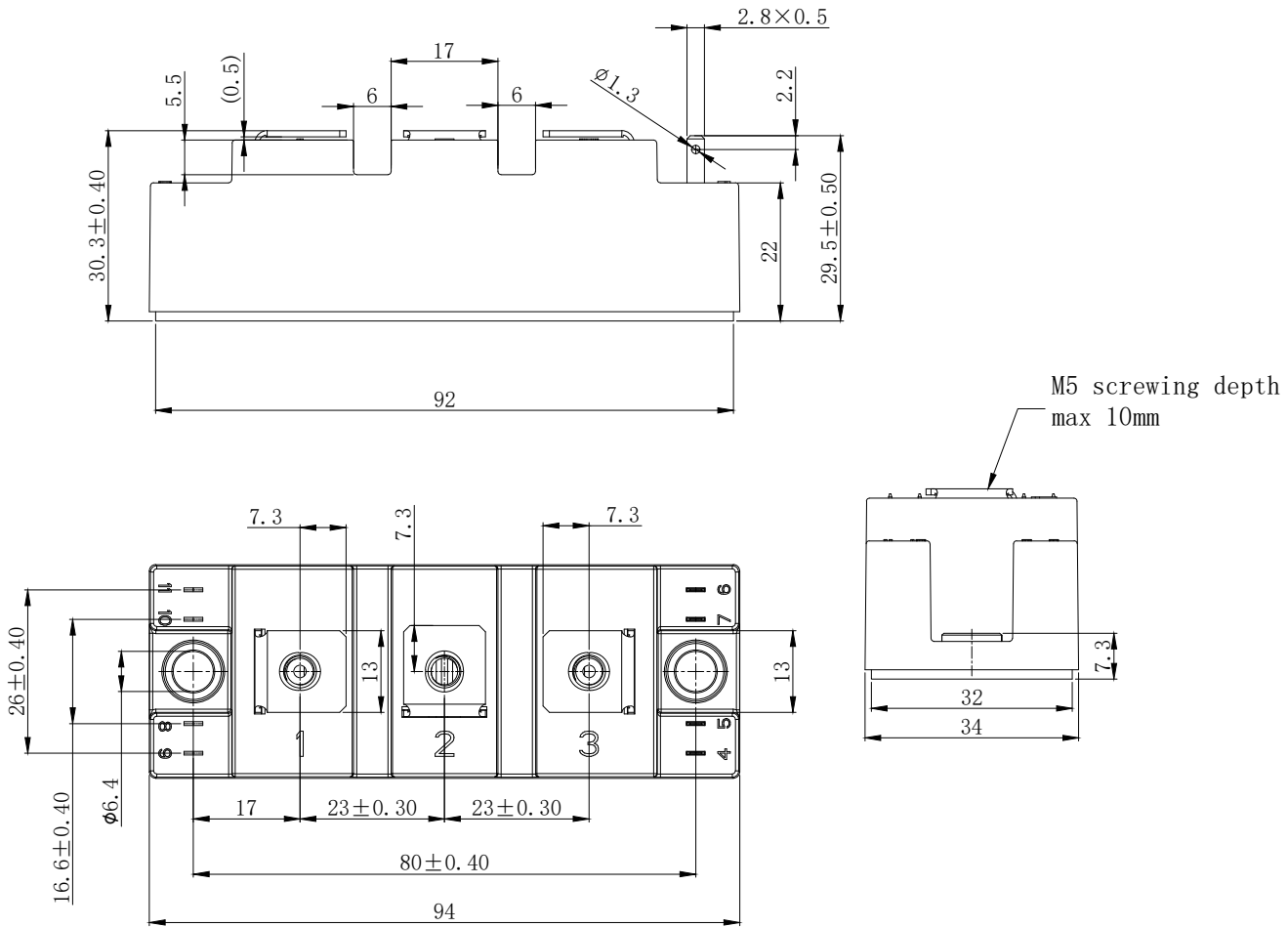


Fig10. Diode Transient Thermal Impedance

Package Dimensions

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Dimensions in mm



Ordering Information

Device	Packing
Part Number-BP	Bulk: 24pcs/Box ; 120pcs/Ctn

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