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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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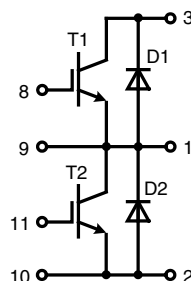


# IGBT Module

## phaseleg

$$\begin{aligned} I_{C25} &= 280 \text{ A} \\ V_{CES} &= 1200 \text{ V} \\ V_{CE(sat) \text{ typ.}} &= 2.2 \text{ V} \end{aligned}$$

Preliminary data



### IGBTs T1 - T2

Symbol	Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C}$ to $125^{\circ}\text{C}$	1200	V
$V_{GES}$		$\pm 20$	V
$I_{C25}$	$T_C = 25^{\circ}\text{C}$	280	A
$I_{C80}$	$T_C = 80^{\circ}\text{C}$	200	A
$I_{CM}$	$V_{GE} = \pm 15 \text{ V}$ ; $R_G = 7.5 \Omega$ ; $T_{VJ} = 125^{\circ}\text{C}$	300	A
$V_{CEK}$	<b>RBSOA</b> Clamped inductive load; $L = 100 \mu\text{H}$	$V_{CES}$	
$t_{SC}$ (SCSOA)	$V_{CE} = 900 \text{ V}$ ; $V_{GE} = \pm 15 \text{ V}$ ; $R_G = 7.5 \Omega$ $T_{VJ} = 125^{\circ}\text{C}$ ; non-repetitive	10	$\mu\text{s}$
$P_{tot}$	$T_C = 25^{\circ}\text{C}$	1100	W

Symbol	Conditions	Characteristic Values			
		$(T_{VJ} = 25^{\circ}\text{C}, \text{ unless otherwise specified})$			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 200 \text{ A}$ ; $V_{GE} = 15 \text{ V}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		2.2 2.6	2.8	V V
$V_{GE(th)}$	$I_C = 6 \text{ mA}$ ; $V_{GE} = V_{CE}$	4.5	5.5	6.5	V
$I_{CES}$	$V_{CE} = V_{CES}$ ; $V_{GE} = 0 \text{ V}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.8 3.5	3.3	mA mA
$I_{GES}$	$V_{CE} = 0 \text{ V}$ ; $V_{GE} = \pm 20 \text{ V}$			400	nA
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$ $E_{on}$ $E_{off}$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}$ ; $I_C = 200 \text{ A}$ $V_{GE} = \pm 15 \text{ V}$ ; $R_G = 7.5 \Omega$		170 60 680 50 29 20		ns ns ns ns mJ mJ
$C_{ies}$			11		nF
$Q_{Gon}$			1.16		$\mu\text{C}$
$R_{thJC}$ $R_{thJH}$			0.22	0.11	K/W K/W

### Features

- NPT<sup>3</sup> IGBT
  - low saturation voltage
  - positive temperature coefficient
  - fast switching
  - short tail current for optimized performance in resonant circuits
- HiPerFRED<sup>TM</sup> diodes
  - fast and soft reverse recovery
  - low operating forward voltage
  - low leakage current
- Package
  - low inductive current path
  - screw connection to high current main terminals
  - use of non interchangeable connectors for auxiliary terminals possible
  - kelvin emitter terminal for easy drive
  - isolated ceramic base plate

### Applications

- drives
  - AC
  - DC
- power supplies
  - rectifiers with power factor correction and recuperation capability
  - UPS

### Free wheeling diodes D1 - D2

Symbol	Conditions	Maximum Ratings	
$I_{F25}$	$T_C = 25^\circ\text{C}$	300	A
$I_{F80}$	$T_C = 80^\circ\text{C}$	190	A

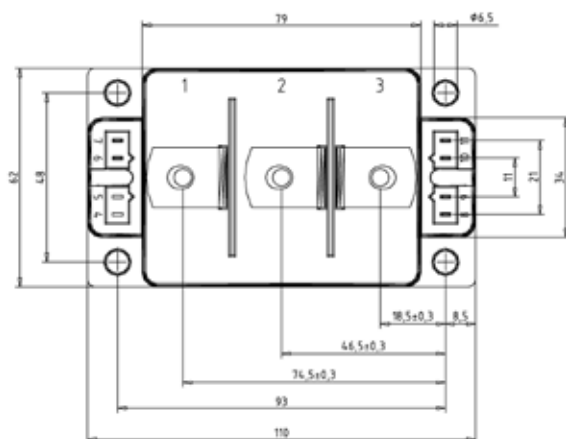
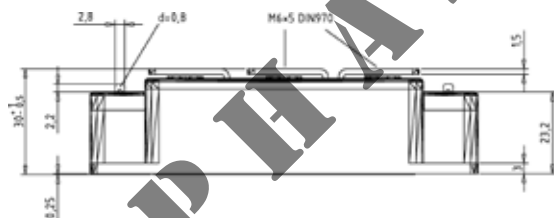
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
<b>V<sub>F</sub></b>	I <sub>F</sub> = 200 A; V <sub>GE</sub> = 0 V; T <sub>VJ</sub> = 25°C T <sub>VJ</sub> = 125°C		2.3 1.7	2.7	V V
<b>I<sub>RM</sub></b> <b>t<sub>rr</sub></b>	} I <sub>F</sub> = 150 A; di <sub>F</sub> /dt = 1500 A/μs; V <sub>R</sub> = 600 V; V <sub>GE</sub> = 0 V; T <sub>VJ</sub> = 125°C		160 220		A ns
<b>R<sub>thJC</sub></b> <b>R<sub>thJH</sub></b>			0.45	0.23	K/W K/W

## Module

Symbol	Conditions	Maximum Ratings	
$T_{VJ}$	operating	-40...+150	°C
$T_{stg}$		-40...+125	°C
$V_{ISO}$	$I_{ISOL} \leq 1 \text{ mA}$ ; 50/60 Hz	4000	V~
$M_d$	Mounting torque (module, M6) (terminal, M6)	2.25 - 2.75 4.5 - 5.5	Nm Nm

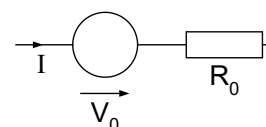
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$d_s$	Creepage distance on surface	2		mm
$d_A$	Strike distance in air	2		mm
<b>Weight</b>			250	g

**Dimensions in mm (1 mm = 0.0394")**



### Equivalent Circuits for Simulation

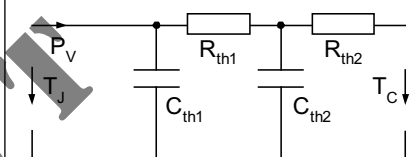
## Conduction



IGBT (typ. at  $V_{GE} = 15\text{ V}$ ;  $T_J = 125^\circ\text{C}$ )  
 $V_o = 1.0\text{ V}$ ;  $R_o = 8\text{ m}\Omega$

Free Wheeling Diode D1-D2 (typ. at  $T_J = 125^\circ\text{C}$ )  
 $V_\sigma = 1.3 \text{ V}; R_\sigma = 2 \text{ m}\Omega$

## Thermal Response



IGBT (typ.)  
 $C_{th1} = tbd \text{ J/K}; R_{th1} = tbd \text{ K/W}$   
 $C_{th2} = tbd \text{ J/K}; R_{th2} = tbd \text{ K/W}$

Free Wheeling Diode D1-D2 (typ.)  
 $C_{th1} = tbd \text{ J/K}; R_{th1} = tbd \text{ K/W}$   
 $C_{th2} = tbd \text{ J/K}; R_{th2} = tbd \text{ K/W}$

### Optional accessories for modules

keyed twin plugs  
(UL758, style 1385, CSA class 5851,  
guide 460-1-1)

- Type ZY180L with wire length 350mm
  - for pins 4 (yellow wire) and 5 (red wire)
  - for pins 11 (yellow wire) and 10 (red wire)
- Type ZY180R with wire length 350mm
  - for pins 7 (yellow wire) and 6 (red wire)
  - for pins 8 (yellow wire) and 9 (red wire)