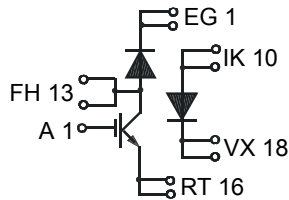


IGBT Module

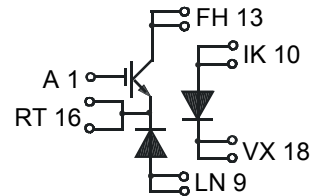
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$I_{C80} = 48 \text{ A}$
 $V_{CES} = 600 \text{ V}$
 $V_{CE(sat)typ.} = 2.3 \text{ V}$

Preliminary Data Sheet



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IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
V_{GES}		± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	69	A
I_{C80}	$T_C = 80^{\circ}\text{C}$	48	A
I_{CM} V_{CEK}	$V_{GE} = \pm 15 \text{ V}; R_G = 22 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	100	A
		V_{CES}	
t_{SC} (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 22 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	208	W

Features

- Package with DCB ceramic base plate
- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- UL registered, E 148688

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 75 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		2.3 2.8	V V	
$V_{GE(th)}$	$I_C = 1 \text{ mA}; V_{GE} = V_{CE}$	4.5		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 mA 4.4 mA	
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			100 nA	
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off}	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 300 \text{ V}; I_C = 40 \text{ A}$ $V_{GE} = 15/0 \text{ V}; R_G = 22 \Omega$		50 55 300 30	ns ns ns ns	
			1.8 1.4	mJ mJ	
C_{ies}		$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	2.8		nF
R_{thJC} R_{thJH}		(per IGBT) with heatsink compound (0.42 K/m.K; 50 μm)	1.2		0.6 K/W K/W

Caution: These Devices are sensitive to electrostatic discharge. Users should observe proper ESD handling precautions.

Reverse diodes (FRED)

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	134	A
I_{F80}	$T_C = 80^\circ\text{C}$	82	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 60\text{ A}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	1.78	1.99	V
		1.33		V
I_{RM}	$I_F = 60\text{ A}; di_F/dt = 500\text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$	28		A
t_{rr}	$V_R = 300\text{ V}; V_{GE} = 0\text{ V}$	100		ns
R_{thJC}	with heatsink compound (0.42 K/m.K; 50 μm)		0.66	K/W
R_{thJH}		1.32		K/W

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-40...+150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
V_{ISOL}	$I_{ISOL} \leq 1\text{ mA}; 50/60\text{ Hz}$	3000	V~
M_d	Mounting torque (M4)	1.5 - 2.0 14 - 18	Nm lb.in.
a	Max. allowable acceleration	50	m/s^2

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
d_s	Creepage distance on surface (Pin to heatsink)	11.2		mm
d_A	Strike distance in air (Pin to heatsink)	11.2		mm
Weight		24		g

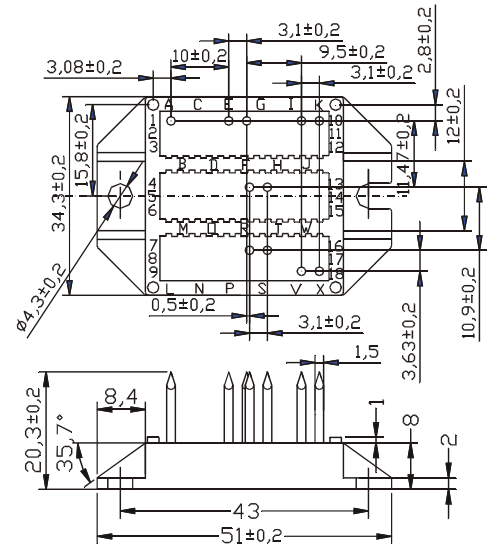
Standard Diode

Symbol	Test Conditions	Characteristic Value	
I_{FAVM}	rectangular, $T_J = 150^\circ\text{C}$	53	A
V_F	$I_F = 80\text{ A}, T_J = 25^\circ\text{C}$	1.2	V
V_{RRM}		1200	V
I_R	$T_J = 25^\circ\text{C}$	50	μA
	$T_J = 150^\circ\text{C}$	4	mA
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$ t = 10 ms (50 Hz), sine	800	A
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	880	A
	$T_{VJ} = T_{VJM}$ t = 10 ms (50 Hz), sine	720	A
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	790	A
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)	0.8	V
r_T		4.8	$\text{m}\Omega$
R_{thJC}	Standard Diode	tbid	K/W

Package style and outline

Dimensions in mm (1mm = 0.0394")

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