

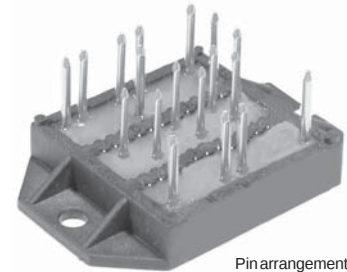
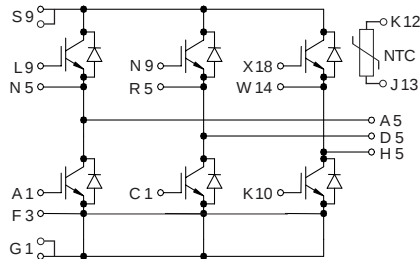
IGBT Module

Sixpack in ECO-PAC 2

VWI 6-12P1

$$\begin{aligned} I_{C25} &= 6 \text{ A} \\ V_{CES} &= 1200 \text{ V} \\ V_{CE(sat)typ.} &= 3.9 \text{ V} \end{aligned}$$

Preliminary data



Pin arrangement see outlines

IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200	V
V_{GES}		± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	6	A
I_{C80}	$T_C = 80^{\circ}\text{C}$	4.1	A
I_{CM}	$V_{GE} = 15/0 \text{ V}; R_G = 89 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	9.6	A
V_{CEK}		V_{CES}	
t_{SC} (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = 15/0 \text{ V}; R_G = 89 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	40	W

Features

- NPT IGBT's
 - positive temperature coefficient of saturation voltage
 - fast switching
- FRED diodes
 - fast reverse recovery
 - low forward voltage
- Industry Standard Package
 - solderable pins for PCB mounting
 - isolated DCB ceramic base plate

Typical Applications

- AC drives
- power supplies with power factor correction

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 4 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		3.9 4.6	4.6 V
$V_{GE(th)}$	$I_C = 0.1 \text{ mA}; V_{GE} = V_{CE}$	3		5 V
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $V_{CE} = 960 \text{ V}; V_{GE} = 0 \text{ V}; T_{VJ} = 125^{\circ}\text{C}$		0.5	0.1 mA mA
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			100 nA
$t_{d(on)}$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 4 \text{ A}$ $V_{GE} = 15/0 \text{ V}; R_G = 89 \Omega$		30	ns
t_r			20	ns
$t_{d(off)}$			290	ns
t_f			90	ns
E_{on}			0.4	mJ
E_{off}			0.2	mJ
C_{ies}	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$		205	pF
Q_{Gon}	$V_{CE} = 960 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 2 \text{ A}$		11	nC
R_{thJC}	(per IGBT)			3.1 K/W
R_{thJH}	(per IGBT) with heatsink compound		6.2	K/W

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Diodes

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	12	A
I_{F80}	$T_C = 80^\circ\text{C}$	8	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 4\text{ A}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		2.4 2.0	2.5 V
I_{RM} t_{rr}	$I_F = \dots\text{ A}; di_F/dt = \dots\text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_R = 600\text{ V}; V_{GE} = 0\text{ V}$		tbd tbd	A ns
R_{thJC} R_{thJH}	(per diode) (per diode) with heatsink compound		7.6	3.8 K/W K/W

Temperature Sensor NTC

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R_{25} $B_{25/50}$	$T = 25^\circ\text{C}$	4.75	5.0 3375	5.25 k Ω K

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ} T_{stg}		-40...+150 -40...+125	$^\circ\text{C}$ $^\circ\text{C}$
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 d_A	Creepage distance on surface (Pin to heatsink) Strike distance in air (Pin to heatsink)	11.2 11.2		mm mm
Weight		24		g

Dimensions in mm (1 mm = 0.0394")

