IXYS

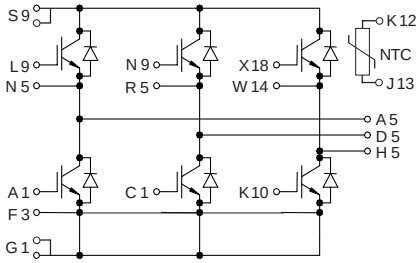
IGBT Module

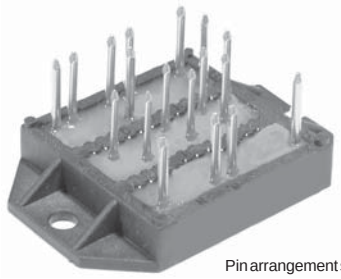
Sixpack in ECO-PAC 2

VWI 6-12P1

I_{C25} = 6 A
V_{CES} = 1200 V
$V_{CE(sat)\,typ.}$ = 3.9 V

Preliminary data





Pin arrangement see outlines

IGBTs

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

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

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Diodes

Symbol	Conditions	Maximum Ratings	
I_{F25}	T_C = 25°C	12	A
I_{F80}	T_C = 80°C	8	A

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

Temperature Sensor NTC

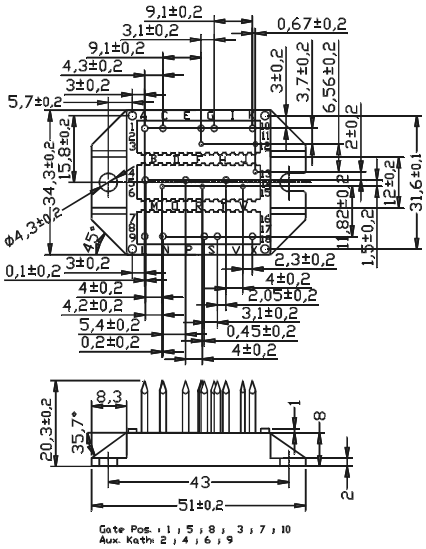
Symbol	Conditions	Characteristic Values min.	typ.	max.	
R_{25}	T = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$			3375		K

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	I_{ISOL} ≤ 1 mA; 50/60 Hz	3000	V~
M_d	mounting torque (M4)	1.5 - 2.0	Nm
		14 - 18	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

Dimensions in mm (1 mm = 0.0394")



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