IGBT Modules
Sixpack
NPT[3] IGBT

I_{C80} = 375 A
V_{CES} = 1200 V
$V_{CE(sat)\,typ.}$ = 2.0 V
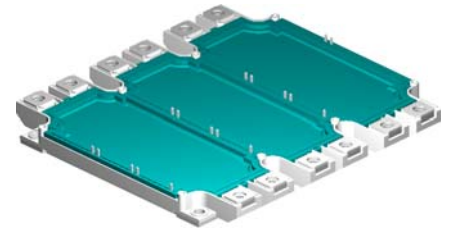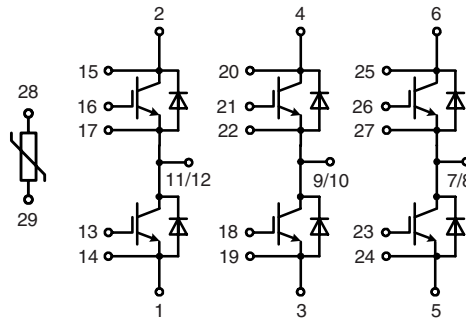
IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	T_{VJ} = 25°C to 125°C	1200	V
V_{GES}		$\pm$ 20	V
I_{C25}	T_C = 25°C	530	A
I_{C80}	T_C = 80°C	375	A
RBSOA	R_G = 3.3 Ω; T_{VJ} = 125°C; Clamped inductive load; L = 100 µH	I_{CM} = 750 $V_{CEK} \leq V_{CES}$	A
t_{SC} (SCSOA)	V_{CE} = 900 V; V_{GE} = ±15 V; R_G = 3.3 Ω; T_{VJ} = 125°C; non-repetitive; $V_{CEmax} \leq V_{CES}$	10	µs
P_{tot}	T_C = 25°C	2.1	kW

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
$V_{CE(sat)}$	I_C = 300 A; V_{GE} = 15 V; T_{VJ} = 25°C		2	2.4	V
	T_{VJ} = 125°C		2.2	2.7	V
$V_{GE(th)}$	I_C = 12 mA; V_{GE} = V_{CE}	4.5		6.5	V
I_{CES}	V_{CE} = V_{CES}; V_{GE} = 0 V; T_{VJ} = 25°C		0.4	1	mA
	T_{VJ} = 125°C		1	12	mA
I_{GES}	V_{CE} = 0 V; V_{GE} = $\pm$ 20 V			600	nA
$t_{d(on)}$			330		ns
t_r	Inductive load, T_{VJ} = 125°C		20		ns
$t_{d(off)}$	V_{CE} = 600 V; I_C = 300 A		750		ns
t_f	V_{GE} = ±15 V; R_G = 3.3 Ω		50		ns
E_{on}			36		mJ
E_{off}			30		mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz		22		nF
Q_{Gon}	V_{CE} = 600 V; V_{GE} = 15 V; I_C = 450 A		2.3		µC
R_{thJC}				0.06	K/W

Features

- NPT[3] IGBT technology
- low saturation voltage
- low switching losses
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- ultra fast free wheeling diodes
- solderable pins for PCB mounting
- package with copper base plate

Advantages

- space savings
- reduced protection circuits
- package designed for wave soldering

Typical Applications

- AC motor control
- AC servo and robot drives
- power supplies

IXYS reserves the right to change limits, test conditions and dimensions.

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Diodes

Symbol	Conditions	Maximum Ratings	
I_{F80}	$T_C = 80°C$	300	A
I_{FRM}	$t_p = 1$ ms	600	A

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
V_F	$I_F = 300$ A; $V_{GE} = 0$ V; $T_{VJ} = 25°C$			2	V
I_{RM}	$I_F = 300$ A; $di_F/dt = 2700$ A/µs; $T_{VJ} = 125°C$; $V_R = 800$ V		240		A
R_{thJC}			0.11		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

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-40...+125	°C
T_{JM}		+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1$ mA; 50/60 Hz	2500	V~
M_d	Mounting torque (M5)	3 - 6	Nm
	Terminal connection torque (M6)	3 - 6	Nm

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
$R_{term-chip}$ *)	Resistance terminal to chip		0.55		mΩ
d_S	Creepage distance on surface	12.7			mm
d_A	Strike distance in air	10			mm
R_{thCH}	with heatsink compound		0.01		K/W
Weight			900		g

*) $V = V_{CE(sat)} + 2x\ R_{term-chip} \cdot I_C$ resp. $V = V_F + 2x\ R_{term-chip} \cdot I_F$

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Dimensions in mm (1 mm = 0.0394")

✳ = tolerance for all dimensions: ⊕ n 0.5