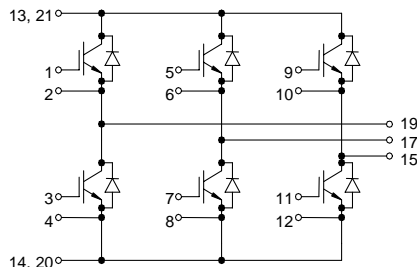


# IGBT Modules

## Sixpack

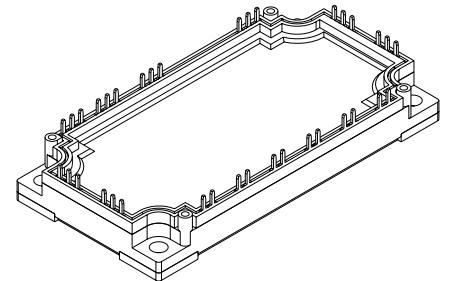
Short Circuit SOA Capability  
Square RBSOA



$$I_{C25} = 170 \text{ A}$$

$$V_{CES} = 600 \text{ V}$$

$$V_{CE(sat) \text{ typ.}} = 2.0 \text{ V}$$



### IGBTs

Symbol	Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
$V_{GES}$		$\pm 20$	V
$I_{C25}$	$T_C = 25^{\circ}\text{C}$	170	A
$I_{C80}$	$T_C = 80^{\circ}\text{C}$	115	A
<b>RBSOA</b>	$V_{GE} = \pm 15 \text{ V}; R_G = 1.5 \Omega; T_{VJ} = 125^{\circ}\text{C}$ Clamped inductive load; $L = 100 \mu\text{H}$	$I_{CM} = 300$ $V_{CEK} \leq V_{CES}$	A
$t_{SC}$ <b>(SCSOA)</b>	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 1.5 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	$\mu\text{s}$
$P_{tot}$	$T_C = 25^{\circ}\text{C}$	515	W

### Features

- NPT IGBT technology
- low saturation voltage
- low switching losses
- switching frequency up to 30 kHz
- square RBSOA, no latch up
- high short circuit capability
- positive temperature coefficient for easy paralleling
- 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

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 150 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		2.0 2.3	V V	
$V_{GE(th)}$	$I_C = 3 \text{ mA}; V_{GE} = V_{CE}$	4.5		6.5 V	
$I_{CES}$	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		1.1	1.5 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, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 300 \text{ V}; I_C = 150 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 1.5 \Omega$		125 30 225 35 2.3 4.6	ns ns ns ns mJ mJ	
$C_{ies}$		$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	6.5	nF	
$Q_{Gon}$		$V_{CE} = 300 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 150 \text{ A}$	tbd	nC	
$R_{thJC}$		(per IGBT)		0.24	K/W

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

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**Diodes**

Symbol	Conditions	Maximum Ratings	
$I_{F25}$	$T_C = 25^\circ\text{C}$	210	A
$I_{F80}$	$T_C = 80^\circ\text{C}$	130	A

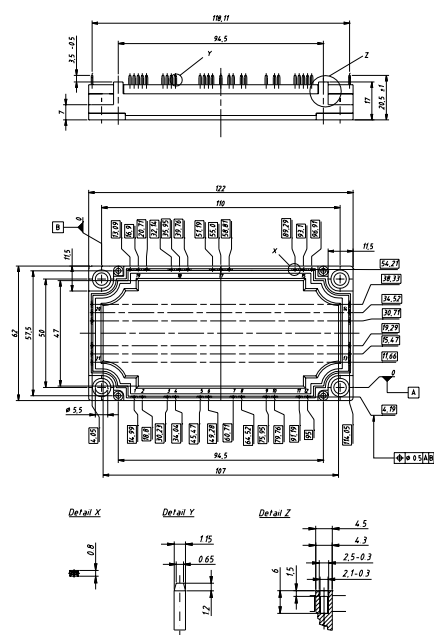
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$V_F$	$I_F = 150 \text{ A}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	1.9	2.0	V
$I_{RM}$ $t_{rr}$	$I_F = 150 \text{ A}; di_c/dt = -750 \text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_R = 300 \text{ V}; V_{GE} = 0 \text{ V}$	37		A
		100		ns
$R_{thJC}$	(per diode)		0.41	K/W

**Module**

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

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{pin-chip}$			1.8	$\text{m}\Omega$
$d_s$	Creepage distance on surface	10		mm
$d_A$	Strike distance in air	10		mm
$R_{thCH}$	with heatsink compound		0.01	K/W
<b>Weight</b>			300	g

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



Higher magnification see outlines.pdf