

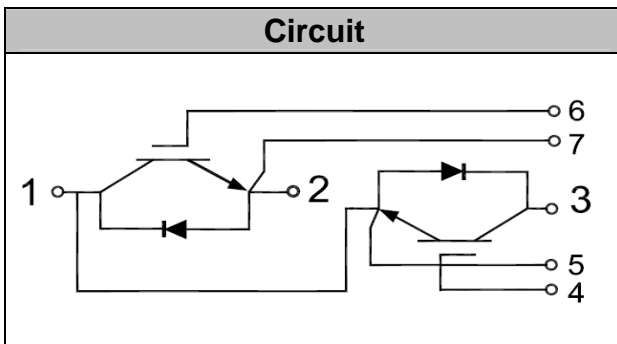
IGBT Modules



V_{CES} 1200V
I_c 75A

Applications

- High frequency drivers
- Solar inverters
- UPS (Uninterruptible Power Supplies)
- Electric welding machine



Features

- High speed IGBT in NPT technology
- Low switching losses
- High short circuit capability(10us)
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance

Absolute Maximum Ratings (T_C = 25°C unless otherwise specified)

Symbol	Description	Values	Units	
V _{CES}	Collector - Emitter Voltage	1200	V	
V _{GES}	Gate-Emitter Voltage	±20	V	
I _C	DC Collector Current	T _C =25°C	100	A
		T _C =80°C	75	A
I _{CM(1)}	Peak Collector Current Repetitive	T _J = 125°C	150	A
I _F	Diode Continuous Forward Current	T _J = 125°C	75	A
P _D	Maximum Power Dissipation (IGBT)	T _C = 25°C, T _{Jmax} =150°C	625	W
T _J	Maximum Junction Temperature		150	°C
T _{JOP}	Operating Temperature		-40 ~ +150	°C
T _{stg}	Storage Temperature		-40 ~ +125	°C
Viso	Isolation Voltage (All Terminals Shorted)	f=50Hz, 1min	3000	V
Weight	Weight Of Module		155	g
Mounting Torque	Power Terminals Screw:M5		2.5~5	N*m
	Mounting Screw:M6		3~5	N*m

Notes :

(1) Repetitive Rating: Pulse width limited by max. junction temperature



Electrical Characteristics of IGBT ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
OFF Characteristics						
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$V_{GE} = 0V, I_C = 1mA$	1200			V
I_{CES}	Collector Leakage Current	$V_{CE}=V_{CES}, V_{GE}=0V,$			500	μA
		$V_{CE}=V_{CES}, V_{GE}=0V,$ $T_J=125^\circ\text{C}$			5	mA
I_{GES}	Gate Leakage Current	$V_{CE}=0V, V_{GE}=\pm 20V$	-400		400	nA
ON Characteristics						
$V_{GE(th)}$	Gate - Emitter Threshold Voltage	$V_{CE}=V_{GE}, I_C=4mA$	5	5.8	6.6	V
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage	$I_C=75A, V_{GE}=15V$		3.0		V
		$I_C=75A, V_{GE}=15V,$ $T_J=125^\circ\text{C}$		3.8		V
Dynamic Characteristics						
C_{ies}	Input Capacitance	$V_{CE} = 25V, V_{GE} = 0V,$ $f = 1MHz$		5.2		nF
C_{oes}	Output Capacitance			0.82		nF
C_{res}	Reverse Transfer Capacitance			0.42		nF
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{CC} = 600V, I_C = 75A,$ $R_G = 10\Omega, V_{GE} = \pm 15V,$ Inductive Load, $T_J = 25^\circ\text{C}$		70		ns
t_r	Rise Time			57		ns
$t_{d(off)}$	Turn-off Delay Time			253		ns
T_f	Fall Time			27		ns
E_{on}	Turn-on Switching Loss			7.2		mJ
E_{off}	Turn-off Switching Loss			1.8		mJ
$t_{d(on)}$	Turn-on Delay Time	$V_{CC} = 600V, I_C = 75A,$ $R_G = 10\Omega, V_{GE} = \pm 15V,$ Inductive Load, $T_J = 125^\circ\text{C}$		80		ns
t_r	Rise Time			65		ns
$t_{d(off)}$	Turn-off Delay Time			285		ns
T_f	Fall Time			32		ns
E_{on}	Turn-on Switching Loss			10.5		mJ
E_{off}	Turn-off Switching Loss			2.8		mJ
R_{g-int}	Internal Gate Resistance			3		Ω
I_{SC}	SC data	$T_P \leq 10\mu s, V_{GE} = 15V,$ $V_{CC} = 600V, V_{CEM} \leq 1200V,$		530		A



Electrical Characteristics of FWD (T_C = 25°C unless otherwise specified)

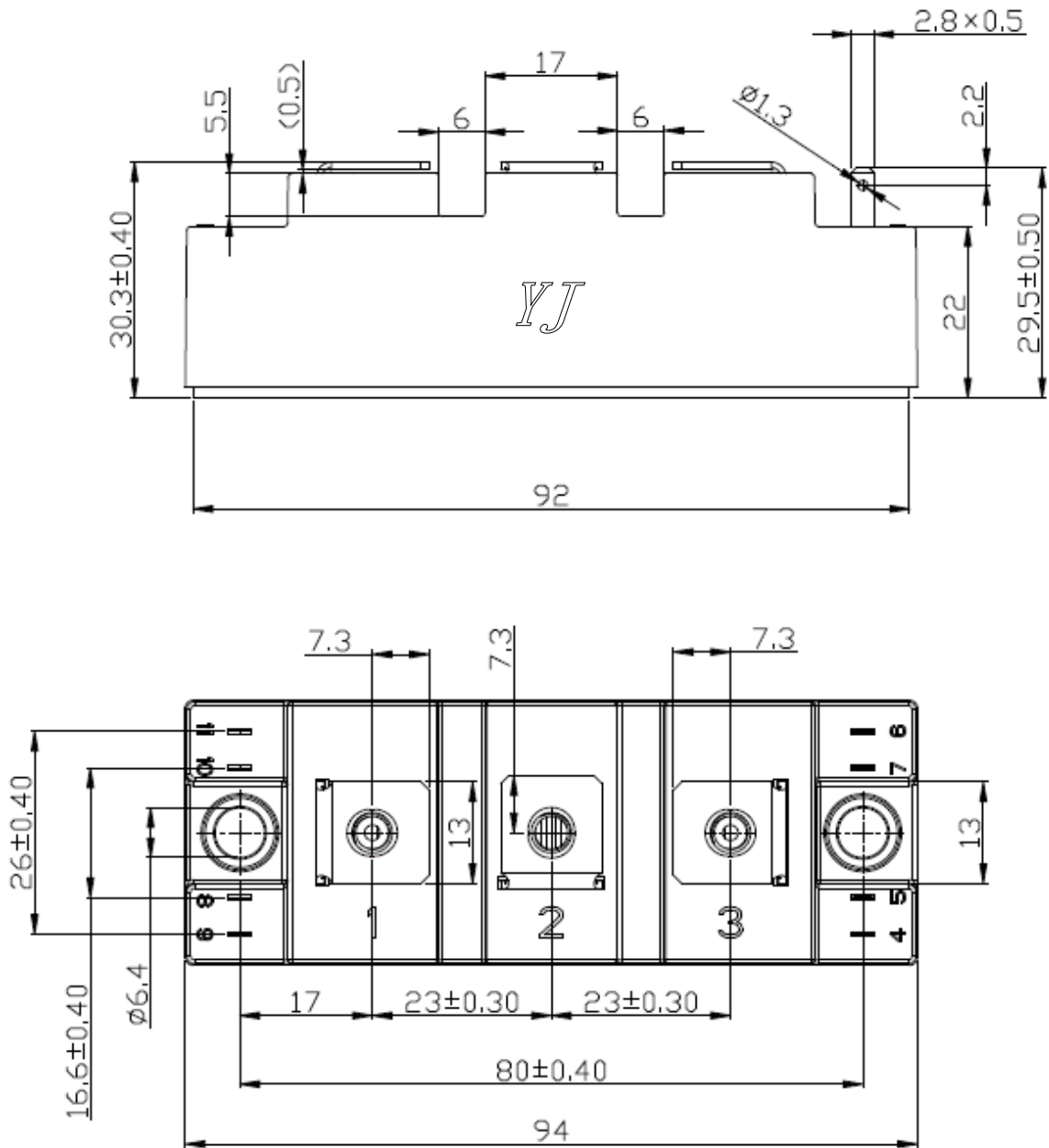
Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V _{FM}	Forward Voltage	I _F = 75A, V _{GE} = 0V	T _J = 25°C	1.9		V
			T _J = 125°C	2.0		
Q _{rr}	Reverse Recovery Charge	I _F = 75A, di/dt = 1200A/μs, V _{rr} = 600V, V _{GE} = -15V	T _J = 25°C	4.8		μC
			T _J = 125°C	9.2		
I _{rr}	Peak Reverse Recovery Current	I _F = 75A, di/dt = 1200A/μs, V _{rr} = 600V, V _{GE} = -15V	T _J = 25°C	65		A
			T _J = 125°C	80		
E _{rec}	Reverse Recovery Energy	I _F = 75A, di/dt = 1200A/μs, V _{rr} = 600V, V _{GE} = -15V	T _J = 25°C	3.0		mJ
			T _J = 125°C	4.5		

Thermal Resistance Characteristics

Symbol	Description	Values			Units
		Min.	Typ.	Max.	
R _{θJC}	Junction-To-Case (IGBT Part, Per Leg)			0.20	°C/W
R _{θJC}	Junction-To-Case (Diode Part, Per Leg)			0.38	°C/W
R _{θCS}	Case-To-Sink (Conductive Grease Applied)		0.05		°C/W

Package Outline Information

CASE: C1



Dimensions in mm