

阅读申明

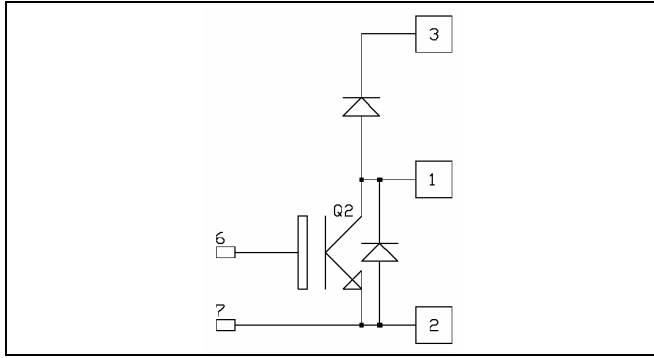
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***Boost Chopper
NPT IGBT Power Module***

**$V_{CES} = 600V$
 $I_C = 75A @ T_c = 80^\circ C$**



Application

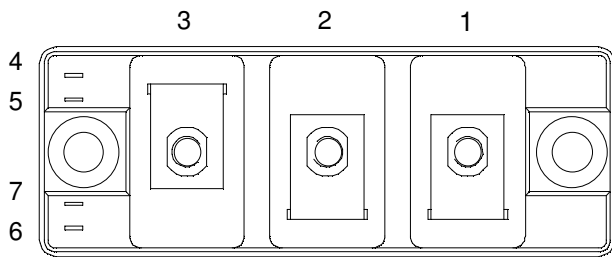
- AC and DC motor control
- Switched Mode Power Supplies
- Power Factor Correction

Features

- Non Punch Through (NPT) fast IGBT
 - Low voltage drop
 - Low tail current
 - Switching frequency up to 50 kHz
 - Soft recovery parallel diodes
 - Low diode VF
 - Low leakage current
 - Avalanche energy rated
 - RBSOA and SCSOA rated
- Kelvin emitter for easy drive
- Low stray inductance
 - M5 power connectors
- High level of integration

Benefits

- Outstanding performance at high frequency operation
- Stable temperature behavior
- Very rugged
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Easy paralleling due to positive TC of VCEsat



Absolute maximum ratings

<i>Symbol</i>	<i>Parameter</i>		<i>Max ratings</i>	<i>Unit</i>
V_{CES}	Collector - Emitter Breakdown Voltage		600	V
I_C	Continuous Collector Current	$T_C = 25^\circ C$	100	A
		$T_C = 80^\circ C$	75	
I_{CM}	Pulsed Collector Current	$T_C = 25^\circ C$	187	
V_{GE}	Gate - Emitter Voltage		± 20	V
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$	355	W
RBSOA	Reverse Bias Safe Operation Area	$T_j = 125^\circ C$	150A@520V	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

Electrical Characteristics

All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
BV_{CES}	Collector - Emitter Breakdown Voltage	$V_{GE} = 0V, I_C = 500\mu A$	600			V
I_{CES}	Zero Gate Voltage Collector Current	$V_{GE} = 0V$ $V_{CE} = 600V$	$T_j = 25^\circ\text{C}$	1	500	μA
			$T_j = 125^\circ\text{C}$	1		mA
$V_{CE(on)}$	Collector Emitter on Voltage	$V_{GE} = 15V$ $I_C = 75A$	$T_j = 25^\circ\text{C}$	1.95	2.45	V
			$T_j = 125^\circ\text{C}$	2.2		
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE} = V_{CE}, I_C = 1.5\text{ mA}$	4.5	5.5	6.5	V
I_{GES}	Gate - Emitter Leakage Current	$V_{GE} = 20V, V_{CE} = 0V$			400	nA

Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C_{ies}	Input Capacitance	$V_{GE} = 0V, V_{CE} = 25V$ $f = 1\text{MHz}$		3300		pF
C_{res}	Reverse Transfer Capacitance			300		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (25°C) $V_{GE} = \pm 15V$ $V_{Bus} = 300V$ $I_C = 75A$ $R_G = 3\Omega$		65		ns
T_r	Rise Time			20		
$T_{d(off)}$	Turn-off Delay Time			155		
T_f	Fall Time			20		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (125°C) $V_{GE} = \pm 15V$ $V_{Bus} = 300V$ $I_C = 75A$ $R_G = 3\Omega$		65		ns
T_r	Rise Time			25		
$T_{d(off)}$	Turn-off Delay Time			170		
T_f	Fall Time			35		
E_{off}	Turn off Energy			2.4		mJ

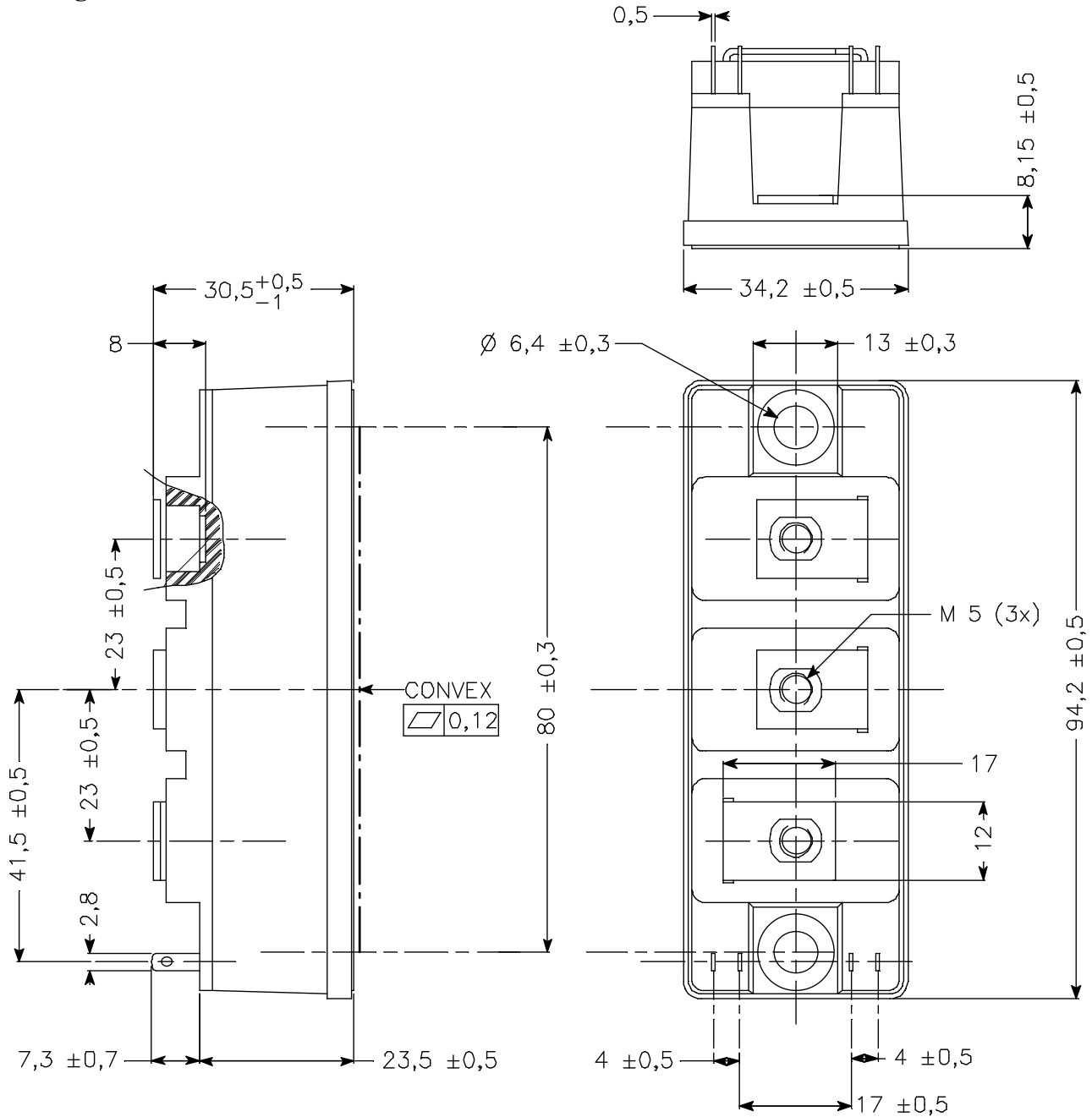
Reverse diode ratings and characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 75A$ $V_{GE} = 0V$	$T_j = 25^\circ\text{C}$	1.25	1.6	V
			$T_j = 125^\circ\text{C}$	1.2		
E_R	Reverse Recovery Energy	$I_F = 75A$ $V_R = 300V$ $di/dt = 800A/\mu s$		2.3		mJ
Q_{rr}	Reverse Recovery Charge	$I_F = 75A$ $V_R = 300V$ $di/dt = 800A/\mu s$	$T_j = 25^\circ\text{C}$	5		μC
			$T_j = 125^\circ\text{C}$	8		

Thermal and package characteristics

Symbol	Characteristic	Min	Typ	Max	Unit	
R_{thJC}	Junction to Case	IGBT		0.35	$^\circ\text{C/W}$	
		Diode		0.66		
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}$, $I_{isol} < 1\text{mA}$, 50/60Hz	2500			V	
T_j	Operating junction temperature range	-40		150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-40		125		
T_C	Operating Case Temperature	-40		125		
Torque	Mounting torque	For terminals	M5	2	3.5	N.m
		To Heatsink	M6	3	5	
Wt	Package Weight			180	g	

Package outline



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