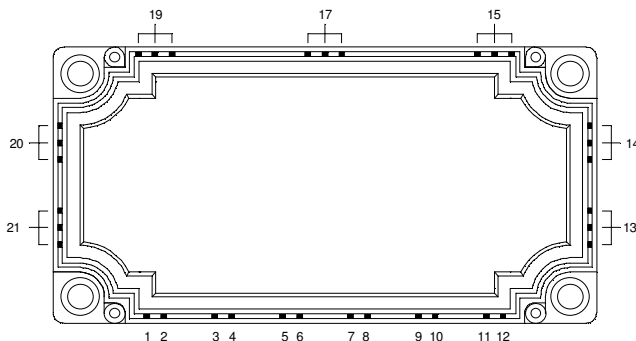
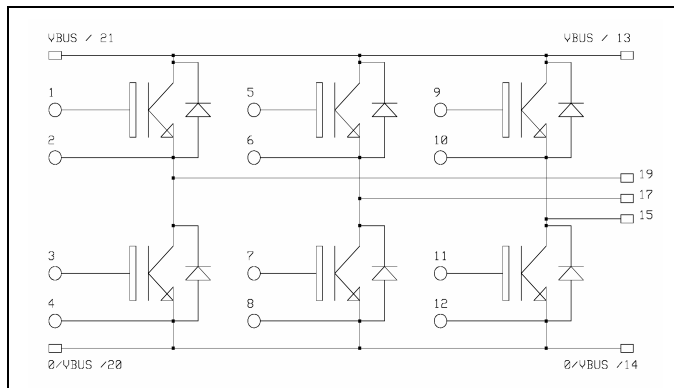


3 Phase bridge Trench IGBT® Power Module

$V_{CES} = 1200V$
 $I_C = 75A @ T_c = 80^\circ C$



Application

- AC Motor control

Features

- Trench + Field Stop IGBT® Technology
 - Low voltage drop
 - Low tail current
 - Switching frequency up to 20 kHz
 - Soft recovery parallel diodes
 - Low diode VF
 - Low leakage current
 - Avalanche energy rated
 - RBSOA and SCSOA rated
- Kelvin emitter for easy drive
- Very low stray inductance
- High level of integration

Benefits

- Stable temperature behavior
- Very rugged
- Solderable terminals for easy PCB mounting
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Easy paralleling due to positive TC of VCEsat
- Low profile

Absolute maximum ratings

Symbol	Parameter	Max ratings	Unit
V _{CES}	Collector - Emitter Breakdown Voltage	1200	V
I _C	Continuous Collector Current	T _C = 25°C 100	A
		T _C = 80°C 75	
I _{CM}	Pulsed Collector Current	T _C = 25°C 175	
V _{GE}	Gate – Emitter Voltage	±20	V
P _D	Maximum Power Dissipation	T _C = 25°C 350	W
RBSOA	Reverse Bias Operating Area	T _j = 125°C 150A@1100V	

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	$V_{GE} = 0V, I_C = 5mA$	1200			V
I_{CES}	Zero Gate Voltage Collector Current	$V_{GE} = 0V, V_{CE} = 1200V$			5	mA
$V_{CE(on)}$	Collector Emitter on Voltage	$V_{GE} = 15V$ $I_C = 75A$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	1.4 2.0	2.1	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE} = V_{CE}, I_C = 3mA$	5.0		6.5	V
I_{GES}	Gate – Emitter Leakage Current	$V_{GE} = 20V, V_{CE} = 0V$			500	nA

Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
C_{ies}	Input Capacitance	$V_{GE} = 0V$		5340		pF
C_{oes}	Output Capacitance	$V_{CE} = 25V$		280		
C_{res}	Reverse Transfer Capacitance	$f = 1MHz$		240		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (25°C) $V_{GE} = \pm 15V$ $V_{Bus} = 600V$ $I_C = 75A$ $R_G = 4.7\Omega$		260		ns
T_r	Rise Time			30		
$T_{d(off)}$	Turn-off Delay Time			420		
T_f	Fall Time			70		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (125°C) $V_{GE} = \pm 15V$ $V_{Bus} = 600V$ $I_C = 75A$ $R_G = 4.7\Omega$		285		ns
T_r	Rise Time			45		
$T_{d(off)}$	Turn-off Delay Time			520		
T_f	Fall Time			90		
E_{off}	Turn off Energy			9.5		mJ

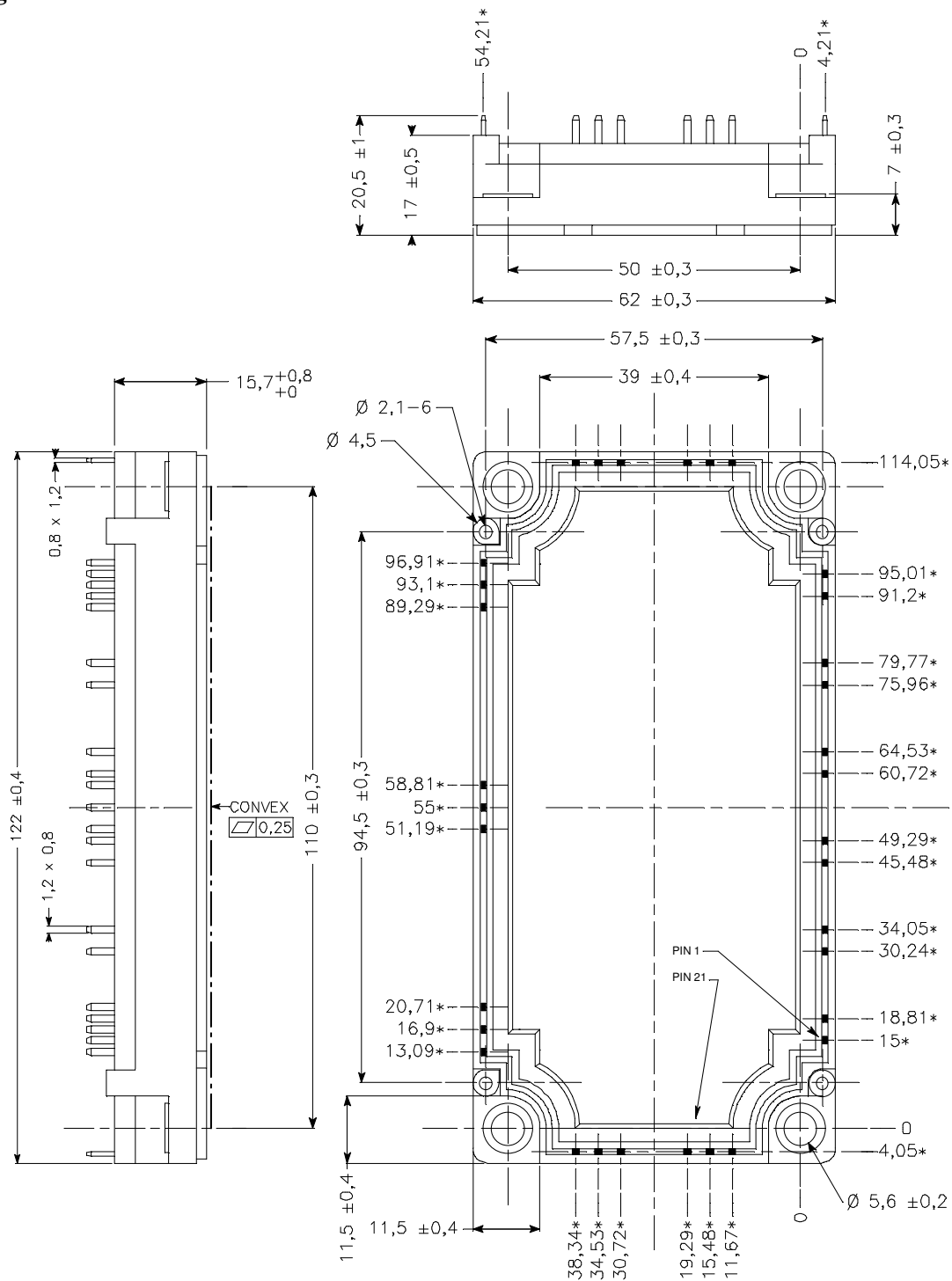
Reverse diode ratings and characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 75A$ $V_{GE} = 0V$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	1.6 1.6	2.1	V
E_r	Reverse Recovery Energy	$I_F = 75A$ $V_R = 600V$ $di/dt = 825A/\mu s$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	3 6		mJ
Q_{rr}	Reverse Recovery Charge	$I_F = 75A$ $V_R = 600V$ $di/dt = 825A/\mu s$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	7.6 13.7		μC

Thermal and package characteristics

Symbol	Characteristic			Min	Typ	Max	Unit
R _{thJC}	Junction to Case			IGBT		0.35	°C/W
				Diode		0.58	
V _{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I isol<1mA, 50/60Hz			2500			V
T _J	Operating junction temperature range			-40		150	°C
T _{STG}	Storage Temperature Range			-40		125	
T _C	Operating Case Temperature			-40		125	
Torque	Mounting torque	To Heatsink	M5	3		4.5	N.m
Wt	Package Weight					300	g

Package outline



ALL DIMENSIONS MARKED " * " ARE TOLERANCED AS : $\begin{matrix} \oplus \\ \ominus \end{matrix} \begin{matrix} 0,4 \\ 0,4 \end{matrix}$

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