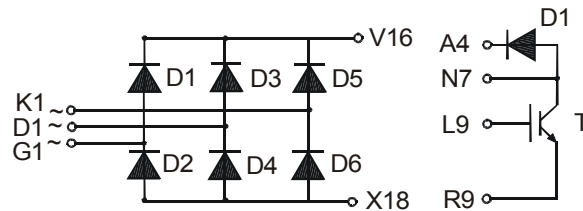


Three Phase Rectifier Bridge PSDI 50/12 with IGBT and Fast Recovery Diode for Braking System in ECO-PAC™ 2

$V_{RRM} = 1200\text{ V}$
 $I_{dAVM} = 56\text{ A}$

Preliminary Data Sheet



Input Rectifier D1 – D6

Symbol	Test Conditions	Maximum Ratings
V_{RRM}		1600 V
I_{FAV}	$T_C = 100^\circ\text{C}$; 180° sine	22 A
I_{dAVM}	$T_C = 100^\circ\text{C}$; 180° sine	56 A
I_{FSM}	$T_{VJ} = 25^\circ\text{C}$ t = 10 ms (50 Hz), sine	300 A
P_{tot}	$T_C = 25^\circ\text{C}$	90 W

Symbol Test Conditions Characteristic Value ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	Characteristic Value	
		typ.	max.
I_R	$V_R = V_{RRM}$, $T_{VJ} = 25^\circ\text{C}$		0.2 mA
	$V_R = 0.8 \cdot V_{RRM}$, $T_{VJ} = 125^\circ\text{C}$	0.4	mA
V_F	$I_F = 45\text{A}$, $T_{VJ} = 25^\circ\text{C}$	1.3	1.6 V
	$T_{VJ} = 125^\circ\text{C}$	1.2	V
R_{thJC}	per diode		1.45 K/W
R_{thJH}	with heat transfer paste	1.8	K/W

Chopper Diode D

Symbol	Test Conditions	Maximum Ratings
V_{RRM}		1200 V
I_{F25}	DC ; $T_C = 25^\circ\text{C}$;	15 A
I_{F80}	DC; $T_C = 80^\circ\text{C}$;	10 A

Symbol	Test Conditions	Characteristic Value
		typ. max.
I_R	$V_R = V_{RRM}$, $T_{VJ} = 25^\circ\text{C}$	0.06 mA
	$T_{VJ} = 125^\circ\text{C}$	0.06 mA
V_F	$I_F = 10\text{A}$, $T_{VJ} = 25^\circ\text{C}$	2.6 3.0 V
	$T_{VJ} = 125^\circ\text{C}$	1.9 V
I_{RM}	$I_F = 10\text{A}$, $di_F/dt = -400\text{ A}/\mu\text{s}$, $T_{VJ} = 125^\circ\text{C}$	13 A
t_{rr}	$V_R = 600\text{ V}$	110 ns
R_{thJC}		3.5 K/W
R_{thJH}	with heat transfer paste	5 K/W

Features

- three phase mains rectifier
- brake chopper:
 - IGBT with low saturation voltage
 - HiPerFRED™ free wheeling diode
- module package:
 - high level of integration
 - solder terminals for pcb mounting
 - isolated DCB ceramic base plate
- UL registered, E 148688

Applications

- Drives with
- mains input
 - DC link
 - inverter or chopper feeding the machine
 - motor and generator/brake operation

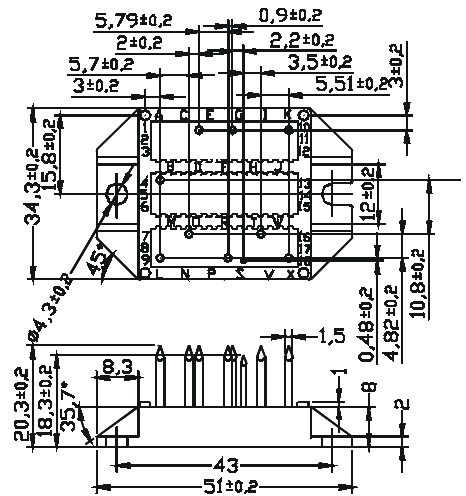
Chopper Transistor T

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C}$ to 150°C	1200	V
V_{GES}		± 20	V
I_{C25}	DC; $T_C = 25^{\circ}\text{C}$;	18	A
I_{C80}	DC; $T_C = 80^{\circ}\text{C}$;	14	A
I_{CM}	$R_G = 82\ \Omega$, $V_{GE} = \pm 15\ \text{V}$, $T_{VJ} = 125^{\circ}\text{C}$	20	A
V_{CEK}	RBSOA; $L = 100\ \mu\text{H}$; clamped inductive load	V_{CES}	

Symbol	Test Conditions	Characteristic Value			
		(T _{VJ} =25°C, unless otherwise specified)			
		min.	typ.	max.	
I_{CES}	$V_{CE} = V_{CES}$, $V_{GE} = 0\ \text{V}$, $T_{VJ} = 25^{\circ}\text{C}$			0.05	mA
					0.8
I_{GES}	$V_{CE} = 0\ \text{V}$, $V_{GE} = \pm 20\ \text{V}$			200	nA
$V_{CE(sat)}$	$I_C = 10\ \text{A}$, $V_{GE} = 15\ \text{V}$ $T_{VJ} = 25^{\circ}\text{C}$		2.3	2.7	V
				2.7	V
$V_{GE(th)}$	$I_C = 0.4\ \text{mA}$, $V_{GE} = V_{CE}$	4.5		6.5	V
$t_{d(on)}$	} Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600\ \text{V}$, $I_C = 10\ \text{A}$ $R_G = 82\ \Omega$, $V_{GE} = \pm 15\ \text{V}$		50		ns
t_r			40		ns
$t_{d(off)}$			290		ns
t_f			60		ns
E_{on}			1.2		mJ
E_{off}		1.1		mJ	
C_{ies}	$V_{CE} = 25\ \text{V}$, $V_{GE} = 0\ \text{V}$, $f = 1\ \text{MHz}$		600		pF
Q_{Gon}	$V_{CE} = 600\ \text{V}$, $V_{GE} = 15\ \text{V}$, $I_C = 10\ \text{A}$		45		nC
R_{thJC}				1.4	K/W
R_{thJH}	with heat transfer paste		2.7		K/W

Package style and outline

Dimensions in mm (1mm = 0.0394")



Module

Symbol	Test Conditions	Maximum Ratings	
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1\ \text{mA}$, 50/60 Hz, $t = 1\ \text{min}$	3600	V~
M_D	Mounting torque (M4)	1.5-2.0	Nm

Symbol	Test Conditions	Characteristic Value		
		typ.	min.	
d_S , d_A	pin to heatsink		11.2	mm
Weight		24		g