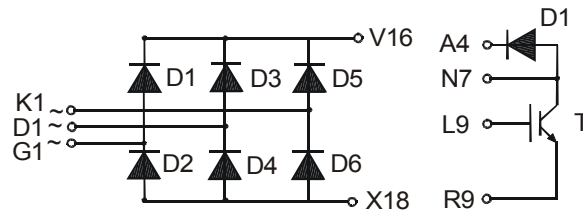


Three Phase Rectifier Bridge PSDI 50/12 with IGBT and Fast Recovery Diode for Braking System in ECO-PAC™ 2

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

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)		
		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

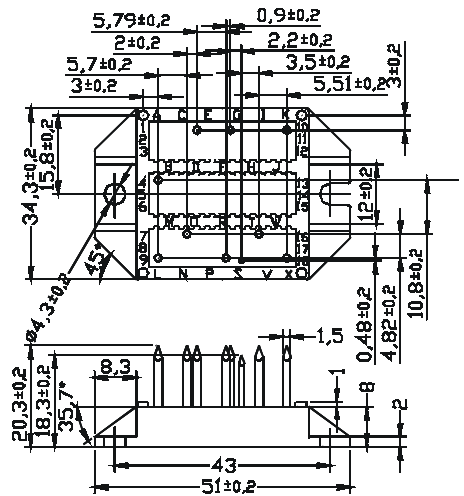
Chopper Transistor T

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
		$T_{VJ} = 125^{\circ}\text{C}$	0.8		mA
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
		$T_{VJ} = 125^{\circ}\text{C}$	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