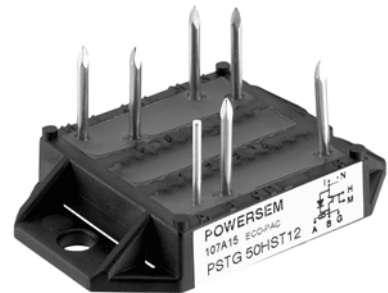
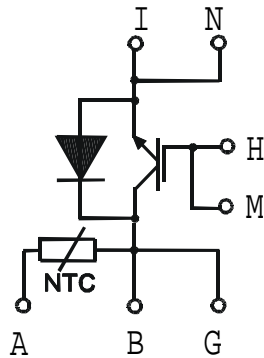


Powerline N-Channel Trench Gate- IGBT Module

PSTG 50HST12

Preliminary Data Sheet

V_{CES}	= 1200 V
$V_{CE(sat)}$	= 1.9 V
I_{C25}	= 72 A
I_{C75}	= 50 A
I_{CM}	= 150 A
t_{sc}	= 10 μ s



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C}$ to 150°C	1200	V
V_{GES}	continuous	± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$;	72	A
I_{C75}	$T_C = 75^{\circ}\text{C}$;	50	A
I_{CM}	$T_C = 75^{\circ}\text{C}$;	150	A
P_{tot}	$T_C = 75^{\circ}\text{C}$	90	W
t_{sc}	$V_{CE} = 80 V_{CES}$, $R_G = 10 \Omega$, $V_{GE} = \pm 15 \text{ V}$ $T_{VJ} = 125^{\circ}\text{C}$, non-repetitive	10	μ s
T_{VJ}		-40...+150	$^{\circ}\text{C}$
T_{stg}		-40...+125	$^{\circ}\text{C}$
R_{thJC}	IGBT-per devices	0.83	K/W
R_{thJC}	Diode-per devices	2.0	K/W
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}$, 50/60 Hz, $t = 1 \text{ min.}$ 180° sine	3000	V~
M_D	Mounting torque (M4)	1.5-1.8	Nm
		typ.	min.
d_S	Creepage distance on surface	11.2	mm
d_A	Strike distance through air	4.0	mm
Weight	typ.	16	g

Features

- Package with DCB ceramic base plate and soldering pins for PCB mounting
- Isolation voltage over 3000 V~
- Trench Gate
- Enhancement Mode N-Channel Device
- Non Punch through Structure
- High Switching Speed
- Low On-state Saturation Voltage
- High Input Impedance Simplifies Gate Drive
- Latch-Free Operation
- Fully Short Circuit Rated to 10 μ s
- Wide RBSOA

Applications

- High Frequency Inverters
- Motor Control
- Switch Mode Power Supplies
- High Frequency Welding
- UPS Systems
- PWM Drives

Caution: These devices are sensitive to electrostatic discharge. Users should observe proper ESD handling precautions.

Symbol	Test Conditions	Characteristic Value	
		typ.	max.
I_{CES}	$V_{CE} = V_{CES}, V_{GE} = 0 V, T_{VJ} = 25^{\circ}C$	0.4	mA
		2	mA
	$T_{VJ} = 125^{\circ}C$		
I_{GES}	$V_{CE} = 0 V, V_{GE} = \pm 20 V$	1	μA
$V_{CE(sat)}$	$I_C = 50 A, V_{GE} = 15 V, T_{VJ} = 25^{\circ}C$	1.9	V
		2.1	V
	$T_{VJ} = 125^{\circ}C$		
$V_{GE(th)}$	$I_C = 50 A, V_{GE} = V_{CE}$	7	V
$t_{d(on)}$		170	ns
t_r	Inductive load, $T_{VJ} = 125^{\circ}C$	17	ns
$t_{d(off)}$	$V_{CE} = 50\% V_{CES}, I_C = 25 A$	340	ns
t_f	$R_G = 5 \Omega, V_{GE} = \pm 15 V$	60	ns
E_{on}		4	mJ
E_{off}		7	mJ
C_{ies}	$V_{CE} = 75 V, V_{GE} = 15 V, f = 1 MHz$	8000	pF
C_{oes}	$V_{CE} = 75 V, V_{GE} = 15 V, f = 1 MHz$	340	pF
C_{ies}	$V_{CE} = 75 V, V_{GE} = 15 V, f = 1 MHz$	50	pF
V_{FM}	$I_F = 25 A, T_{VJ} = 25^{\circ}C$	1.9	V
		1.92	V
	$T_{VJ} = 125^{\circ}C$		
t_{rr}	$I_F = 25 A, di_{RR} / dt = 200 A/\mu s,$	90	ns
I_{RRM}	$V_R = 50\% V_{RRM}$	12	A
NTC	$25^{\circ}C$	470	$k\Omega$

Package style and outline

Dimensions in mm (1mm = 0.0394")

