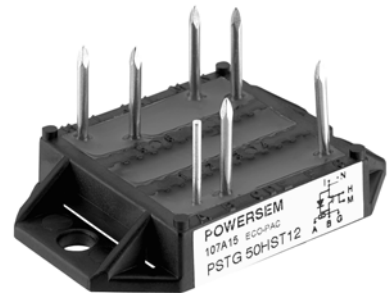
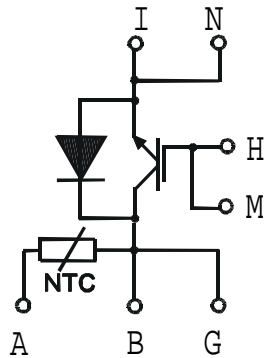


## Powerline N-Channel Trench Gate- IGBT Module

## 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 $\mu$ s



Symbol	Test Conditions	Maximum Ratings	
$V_{CES}$	$T_{VJ} = 25^{\circ}\text{C}$ to $150^{\circ}\text{C}$	1200	V
$V_{GES}$	continuous	$\pm 20$	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	$\mu$ 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
<b>Weight</b>	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  $\mu$ 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	$\mu A$
$V_{CE(sat)}$	$I_C = 50 A, V_{GE} = 15 V, T_{VJ} = 25^{\circ}C$	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
<b>NTC</b>	$25^{\circ}C$	470	$k\Omega$

**Package style and outline**

Dimensions in mm (1mm = 0.0394")

