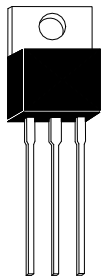
HST12

TRIAC 600V,12A



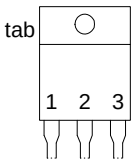
TO-220AB

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Pin Configuration

Pin	Description
1	Main terminal 1
2	Main terminal 2
3	Gate
tab	Main terminal 2



Symbol

Limtiing Values

Symbol	Parameter	Min.	Max.	Units
V_{DRM}	Repetitive peak off-state voltages	-	600	V
$I_{T(RMS)}$	RMS on-state current	-	12	A
I_{TSM}	Non-repetitive peak on-state current(F=50Hz,tp=20ms)	-	120	A
I^2t	I^2t for fusing (IT=10ms)	-	78	A^2S
dI_T/dt	Repetitive rate of rise of on-state current after triggering (F=50Hz,IG=50mA,dIg/dt=0.1us)	-	50	A/us
I_{GM}	Peak gate current(tp=20us,Tj=125°C)	-	4	A
$P_{G(AV)}$	Average gate power (Tj=125°C)	-	1	W
Tstg	Storage Temperature Range	-40	150	°C
Tj	Operating junction temperature	-40	125	°C

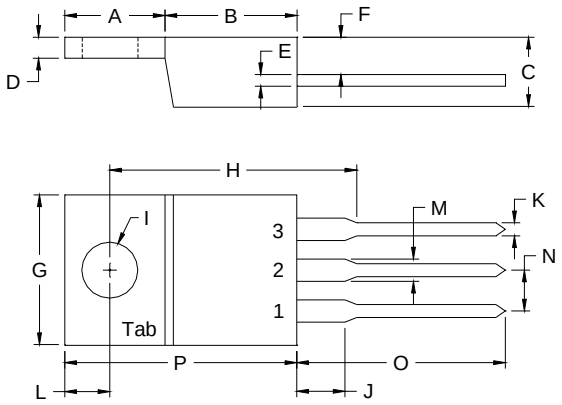
Electrical Characteristics (Ta=25°C, unless otherwise stated,)

Symbol	Parameter	Quadrant	Rank min		Rank max		Unit
			C	B	C	B	
I_{GT}	Gate Trigger Current (V_D=12V)	I - II - III			25	50	mA
		IV			50	100	mA
I_L	Latching Current (I_T=1.2 I_{GT},Tj=25°C)	I - III- IV			40	50	mA
		II			80	100	mA
I_H	Holding Current(I_T=0.1A,)	ALL			25	50	mA
V_{TM}	On-state Voltage (I_T=8.5A,)				1.55		V
V_{GT}	Gate Trigger Voltage (V_D=12V, Tj=25°C)				1.3		V
I_D	Off-state Leakage Current T_C=25°C				10		uA
	(V_D = V_{DRM}(max)) T_C=125°C				1		mA
dV_D/dt	Critical rate of rise of off-state voltage V_{DM}=400VTj= 125°C; exponential waveform; gate open circuit		200	400			V/us

Thermal Resistances

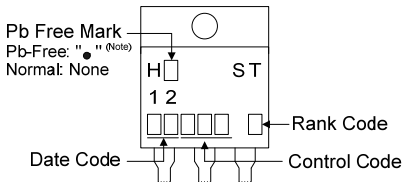
Symbol	Parameter	Min.	Typ	Max.	Unit
Rth j-c	Thermal resistance junction to mounting base		1.4		°C/W

TO-220AB Dimension



3-Lead TO-220AB
Plastic Package
HSMC Package Code: E

Marking:



Note: Green label is used for pb-free packing

Pin Style: 1. Main terminal 1
2 & Tab. Main terminal 2
3.Gate

Material:
- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	5.58	7.49
B	8.38	8.90
C	4.40	4.70
D	1.15	1.39
E	0.35	0.60
F	2.03	2.92
G	9.66	10.28
H	-	*16.25
I	-	*3.83
J	3.00	4.00
K	0.75	0.95
L	2.54	3.42
M	1.14	1.40
N	-	*2.54
O	12.70	14.27
P	14.48	15.87

*: Typical, Unit: mm

Head Office And Factory:

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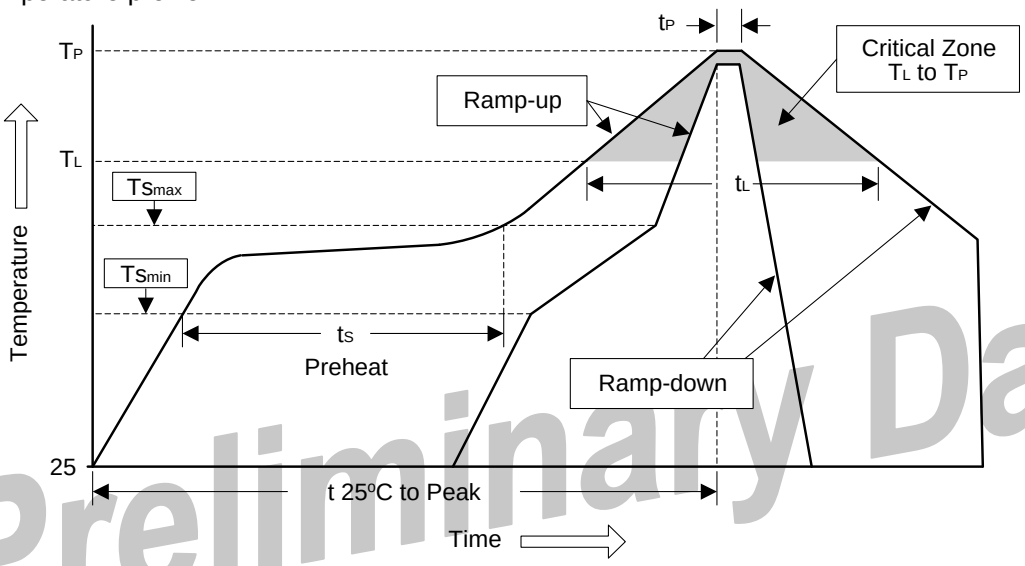
Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (min to max) (ts)	 100°C 150°C 60~120 sec	 150°C 200°C 60~180 sec
Tsmax to T_L - Ramp-up Rate	 <3°C/sec	 <3°C/sec
Time maintained above: - Temperature (T_L) - Time (t_L)	 183°C 60~150 sec	 217°C 60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec