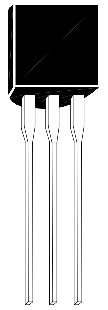
HML1225/HXL1225

0.8A 300/380 VOLTAGE SCRS IGT<200uA



TO-92

Description

The HML1225/HXL1225 series silicon controlled rectifiers are high performance planner diffused PNPN devices. These parts are intended for low cost high volume applications.

Absolute Maximum Ratings (T_A=25°C)

Parameter	Part No.	Symbol	Min	Max	Unit	Test Conditions
Repetitive Peak Off State Voltage	HXL1225 HML1225	V_{DRM} V_{DRM}	380 300	- -	V V	T_J=40°C to 125°C (R_{GK}=1K)
On-State Current		$I_{T(rms)}$	0.8	-	A	T_C=40°C
Average On-State Current		$I_{T(AV)}$	0.5	-	A	Half Cycle=180°,T_C=40°C
Peak Reverse Gate Voltage		V_{GRM}	8	-	V	I_{GR}=10uA
Peak Gate Current		I_{GM}	1	-	A	10us max
Gate Dissipation		$P_{G(AV)}$	0.1	-	W	20ms max
Operating Temperature		T_J	-40	125	°C	
Storage Temperature		T_{stg}	-40	125	°C	
Soldering Temperature		T_{sld}	-	250	°C	1.6mm from case 10s max

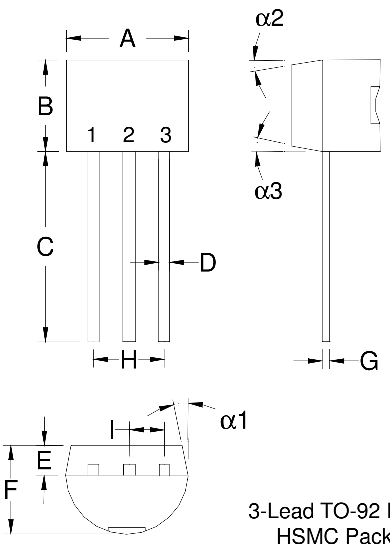
Classification Of IGT

Rank	AA	AB	AC	AD	B	C
HML1225	10-18 uA	12-23 uA	17-28 uA	22-55 uA	45-105 uA	-
HXL1225	10-18 uA	12-23 uA	17-28 uA	22-55 uA	45-105 uA	95-155 uA

Electrical Characteristics (T_A=25°C)

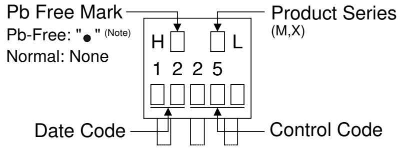
Parameter	Symbol	Min	Max	Unit	Test Conditions
Off-State Leakage Current	I_{DRM}	-	0.1	mA	@V_{DRM} (R_{GK}=1K), T_J=125°C
Off-State Leakage Current	I_{DRM}	-	5	uA	@V_{DRM} (R_{GK}=1K), T_J=25°C
On-State Voltage	V_T	-	1.4	V	@ I_T=0.4A, T_J=25°C
		-	2.2	V	@ I_T=0.8A, T_J=25°C
On-State Threshold Voltage	$V_{T(TO)}$	-	0.95	V	T_J=125°C
On-State Slops Resistance	r_T	-	600	Ohm	T_J=125°C
Gate Trigger Current	I_{GT}	-	200	uA	V_D=7V
Gate Trigger Voltage	V_{GT}	-	0.8	V	V_D=7V
Holding Current	I_H	-	5	mA	R_{GK}=1K(ohm)
Latching Current	I_L	-	6	mA	R_{GK}=1K(ohm)
Critical Rate of Voltage Rise	dv/dt	25	-	V/us	V_D=0.67*V_{DRM}(R_{GK}=1K), T_J=125°C
Crtical Rate of Current Rise	di/dt	30	-	A/us	I_G=10mA,diG/dt=0.1A/us, T_J=125°C
Gate Controlled Delay Time	t_{gd}	-	500	ns	I_G=10mA,diG/dt=0.1A/us
Commutated Turn-off Time	t_g	-	200	us	T_C=85°C,V_D=0.67*V_{DRM} V_R=35V,I_T=$I_{T(AV)}$
Thermal Resistance junc.to case	$R_{\theta jc}$	100	-	K/W	
Thermal Resistance junc. to amb	$R_{\theta ja}$	200	-	K/W	

TO-92 Dimension



3-Lead TO-92 Plastic Package
HSMC Package Code: A

Marking:



Note: Green label is used for pb-free packing

Pin Style: 1.Cathode 2.Gate 3.Anode

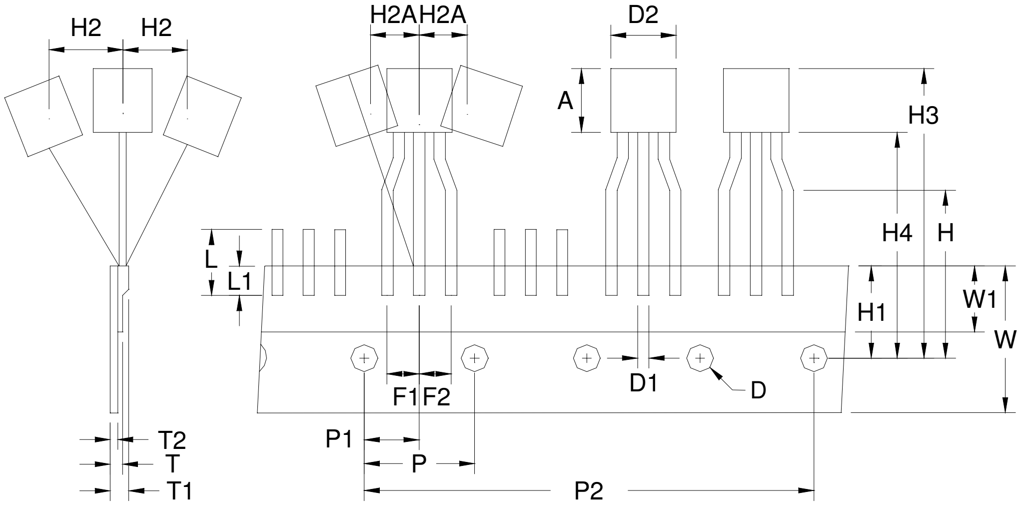
Material:

- 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	4.33	4.83
B	4.33	4.83
C	12.70	-
D	0.36	0.56
E	-	*1.27
F	3.36	3.76
G	0.36	0.56
H	-	*2.54
I	-	*1.27
α1	-	*5°
α2	-	*2°
α3	-	*2°

*: Typical, Unit: mm

TO-92 Taping Dimension



DIM	Min.	Max.
A	4.33	4.83
D	3.80	4.20
D1	0.36	0.53
D2	4.33	4.83
F1,F2	2.40	2.90
H	15.50	16.50
H1	8.50	9.50
H2	-	1
H2A	-	1
H3	-	27
H4	-	21
L	-	11
L1	2.50	-
P	12.50	12.90
P1	5.95	6.75
P2	50.30	51.30
T	-	0.55
T1	-	1.42
T2	0.36	0.68
W	17.50	19.00
W1	5.00	7.00

Unit: mm

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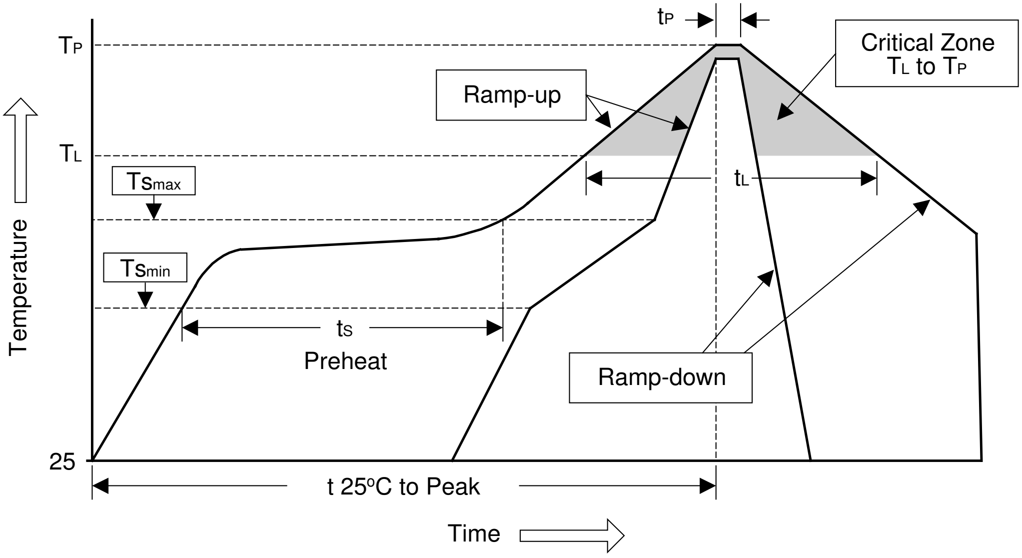
Soldering Methods for HSMC's Products

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