6Amp. Schottky Barrier Rectifiers

CSK640J3

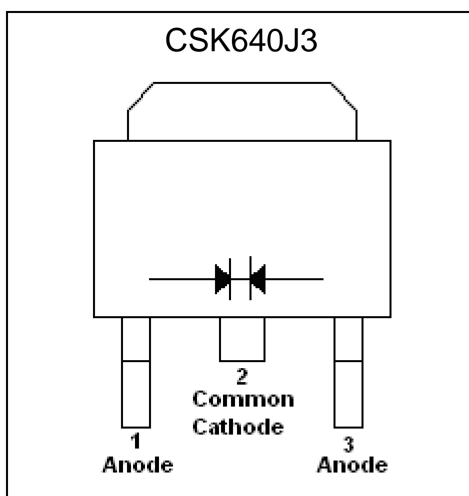
Features

- Excellent power dissipation offers better reverse leakage current and thermal resistance
- Low profile surface mount application in order to optimize board space
- Metal silicon junction, major carrier conduction
- 6A total (3A per diode leg)
- Guardring for over voltage protection
- Low power loss, high efficiency
- High surge capability
- High current capability, low forward voltage drop
- Ultra-high speed switching
- Lead-free parts meet environmental standard MIL-STD-19500 /228

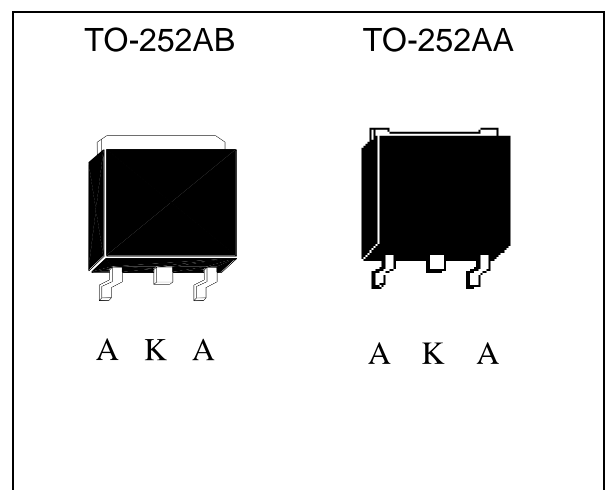
Mechanical Data

- Case: Molded plastic, TO-252
- Mounting Position: Any
- Weight: 0.34 grams approximately
- Terminals: Pure tin plated, lead-free, solderable per MIL-STD-750 method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity : Indicated by diode symbol

Equivalent Circuit



Outline



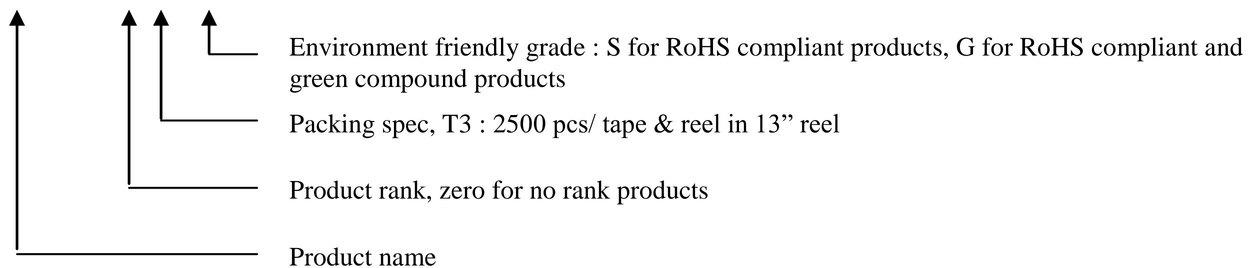
Maximum Ratings and Electrical Characteristics (Per Diode Leg)

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

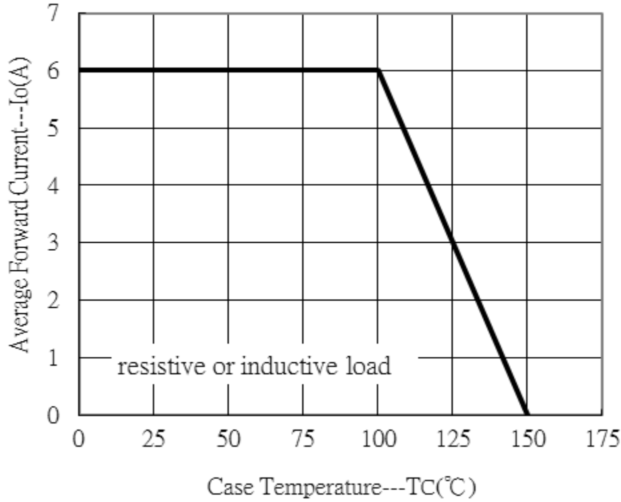
Parameter		Symbol	Limits	Units
Maximum Recurrent peak reverse voltage		V_{RRM}	40	V
Maximum RMS voltage		V_{RMS}	28	V
Maximum DC blocking voltage		V_{DC}	40	V
Maximum instantaneous forward voltage at I_F=3A		V_F	0.55	V
Maximum Average forward rectified current	Per Diode	$I_{F(AV)}$	3	A
	Per Device		6	
Non-repetitive peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method)		I_{FSM}	75	A
Maximum instantaneous reverse current at	V_R=40V, T_A= 25℃	I_R	0.5	mA
	V_R=40V, T_A= 125℃		20	
Maximum Thermal Resistance, Junction-to-case		$R_{\theta JC}$	5	°C/W
Maximum Thermal Resistance, Junction-to-ambient		$R_{\theta JA}$	125	°C/W
Storage temperature range		Tstg	-65 ~ +175	℃
Operating junction temperature range		T_J	-55 ~ +150	℃

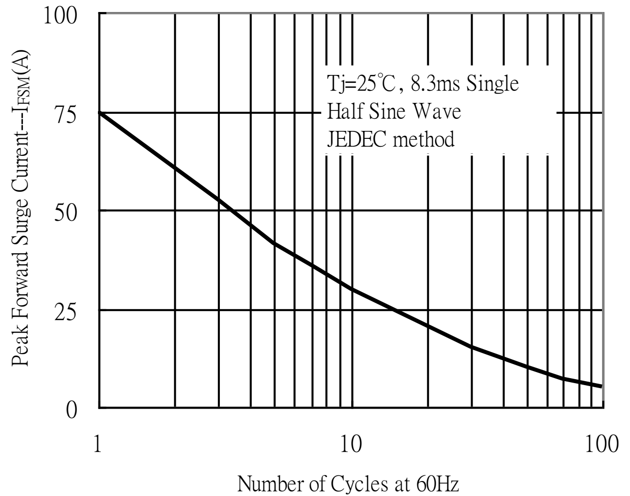
Ordering Information

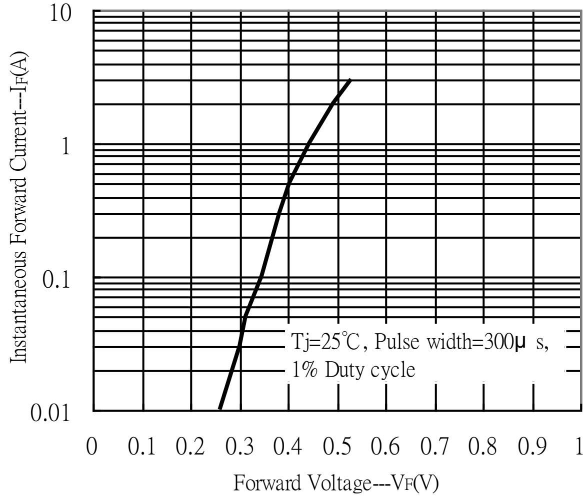
Device	Package	Shipping
CSK640J3-0-T3-□	TO-252 (Pb-free)	2500/Tape & Reel

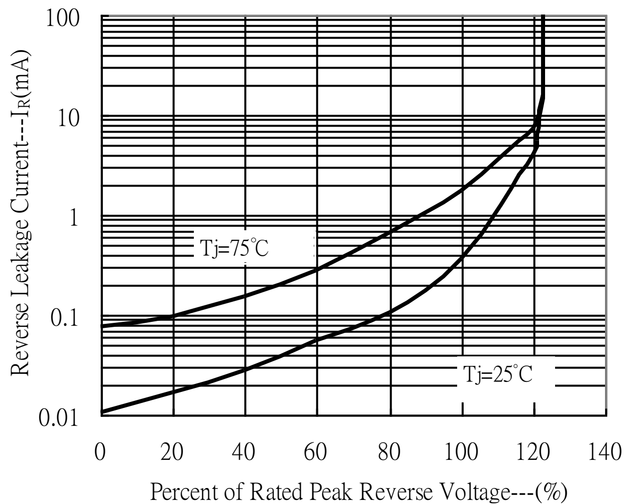


Characteristic Curves

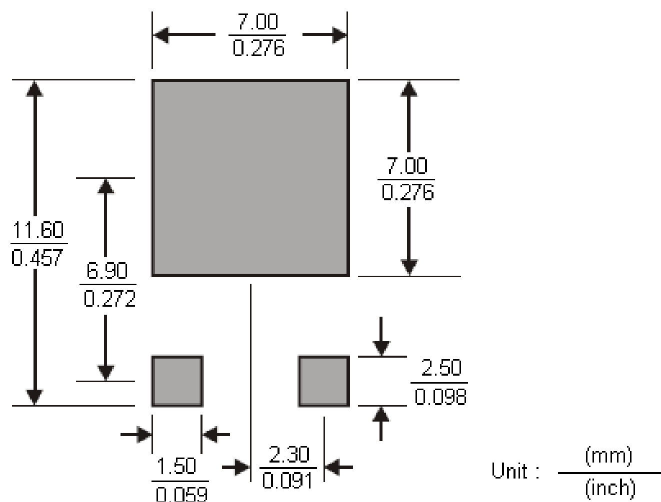




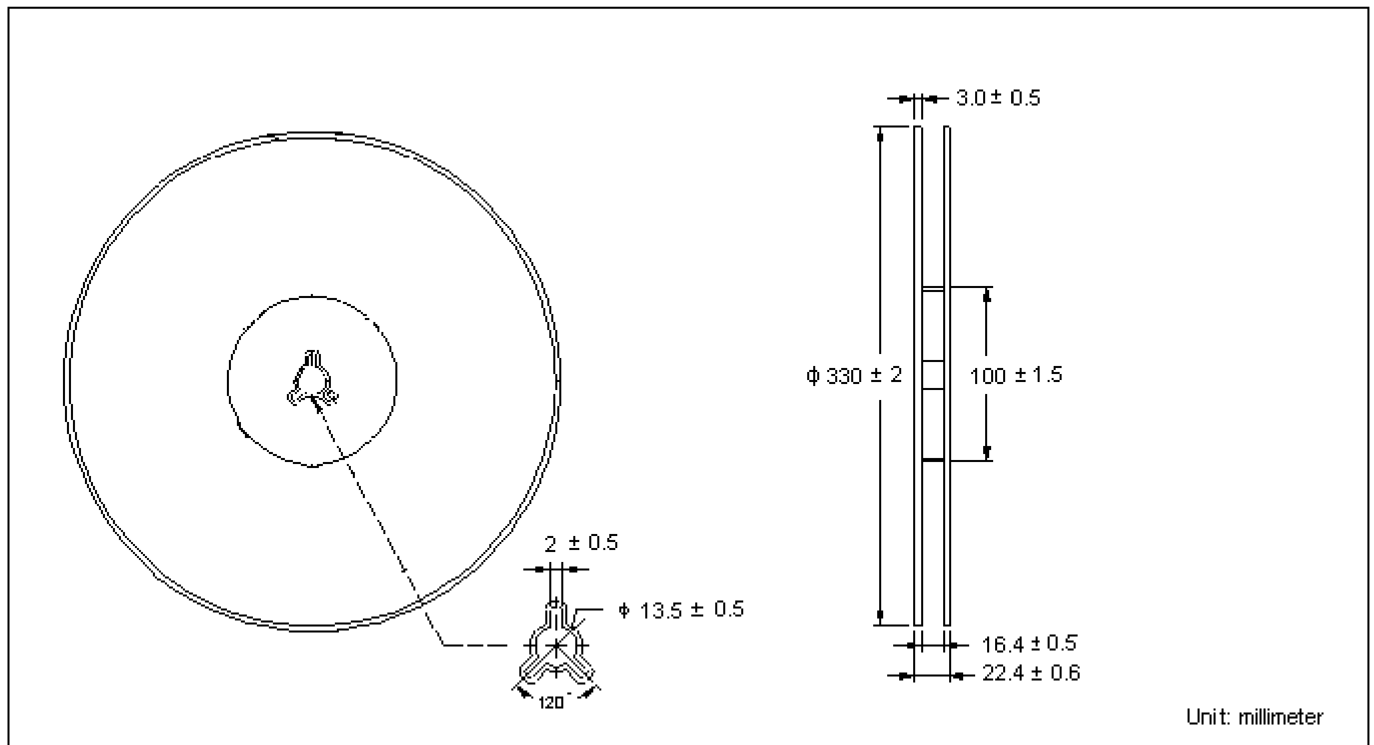




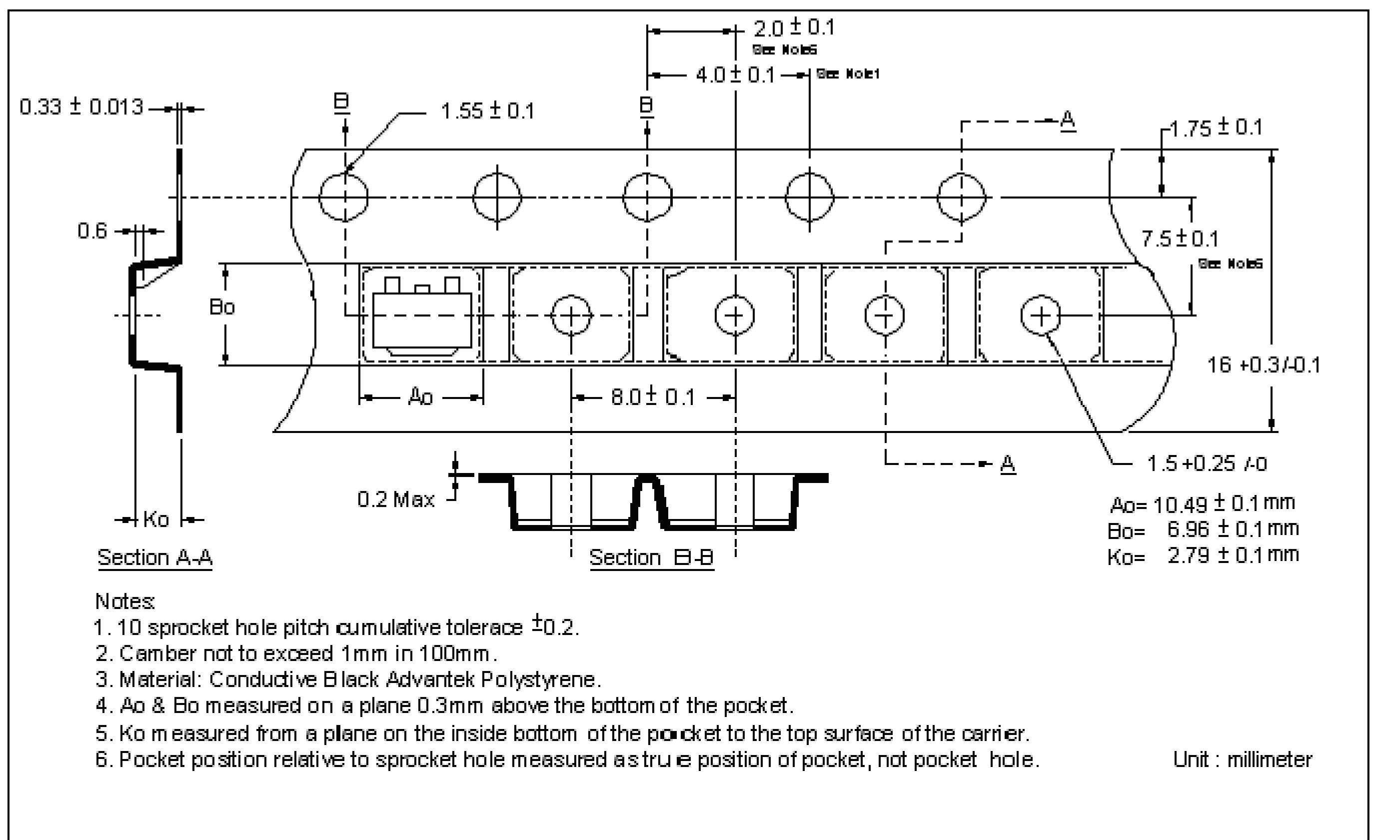
Recommended soldering footprint



Reel Dimension



Carrier Tape Dimension



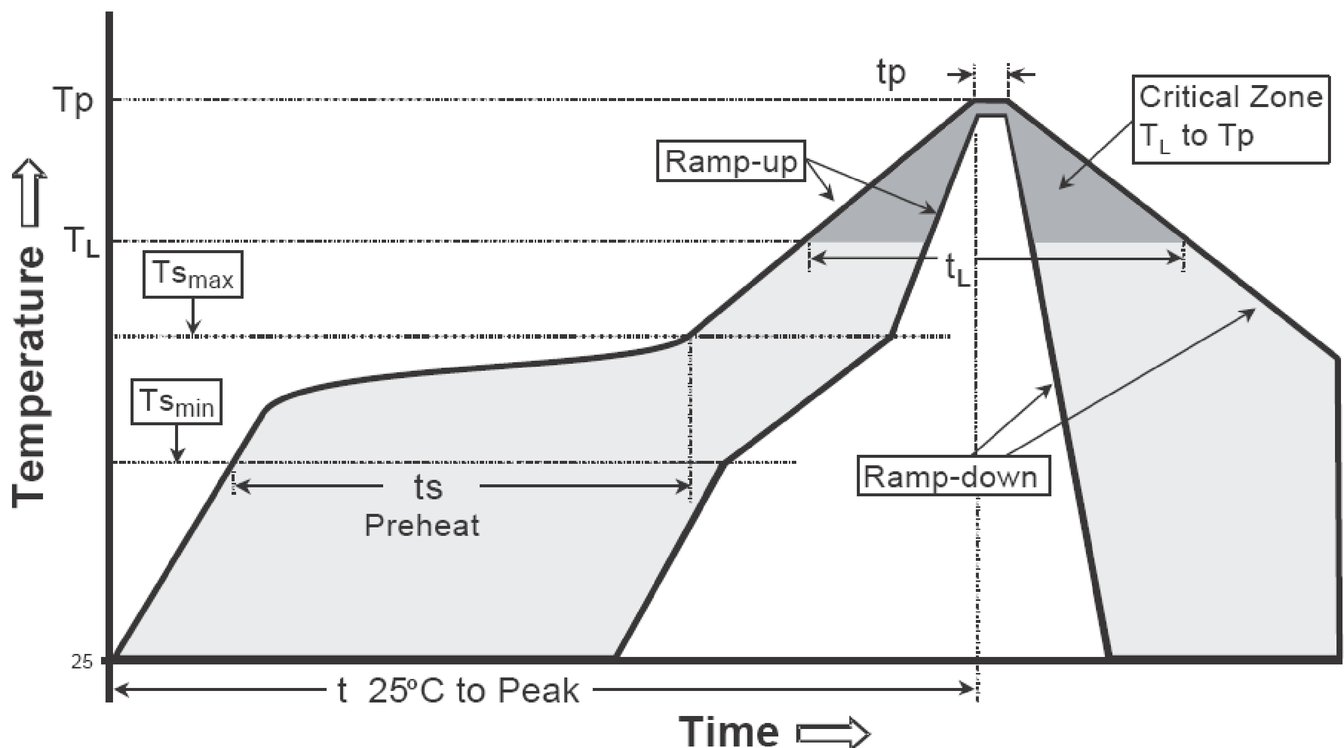
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

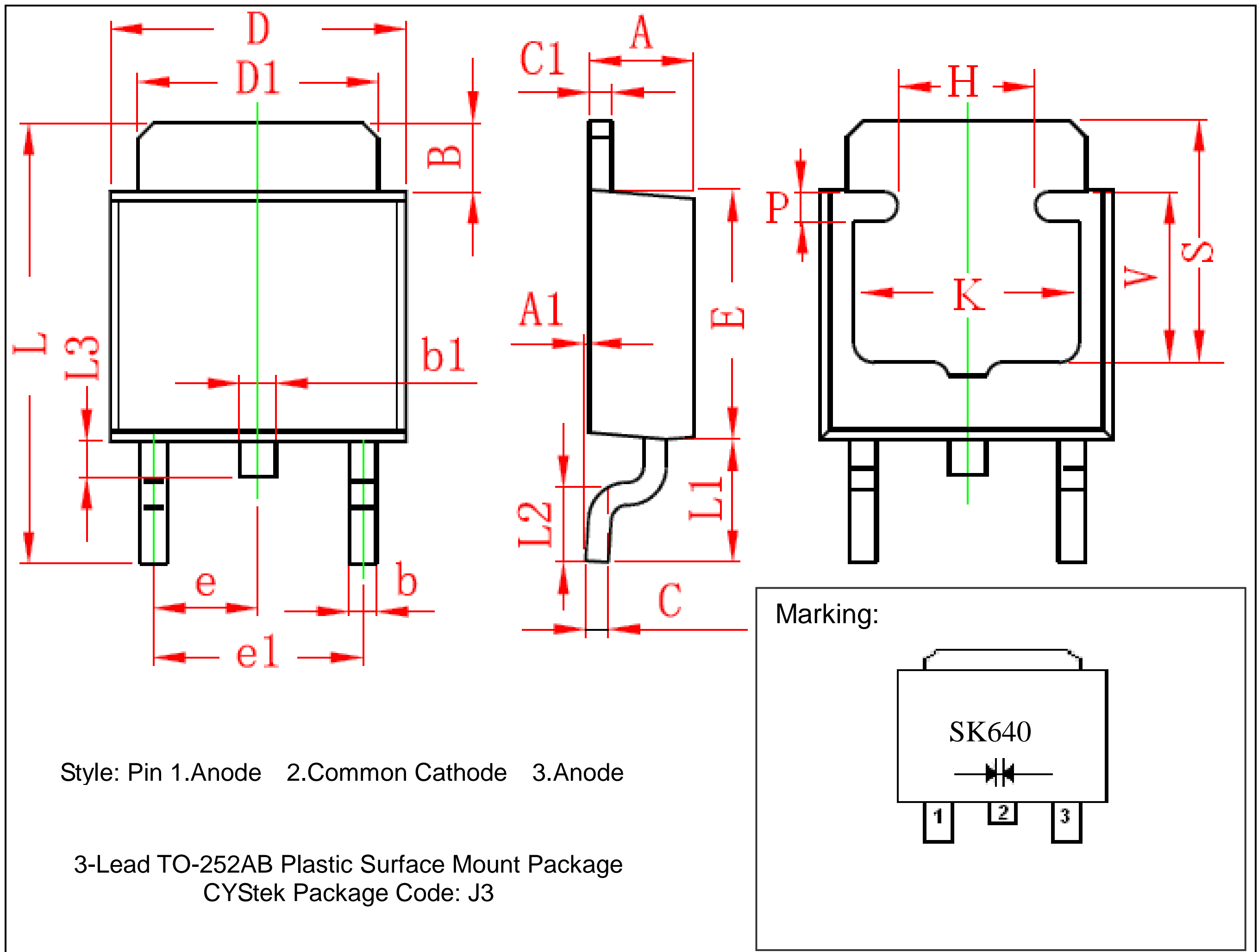
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time(ts_{min} to ts_{max})	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

TO-252AB Dimension



*: Typical

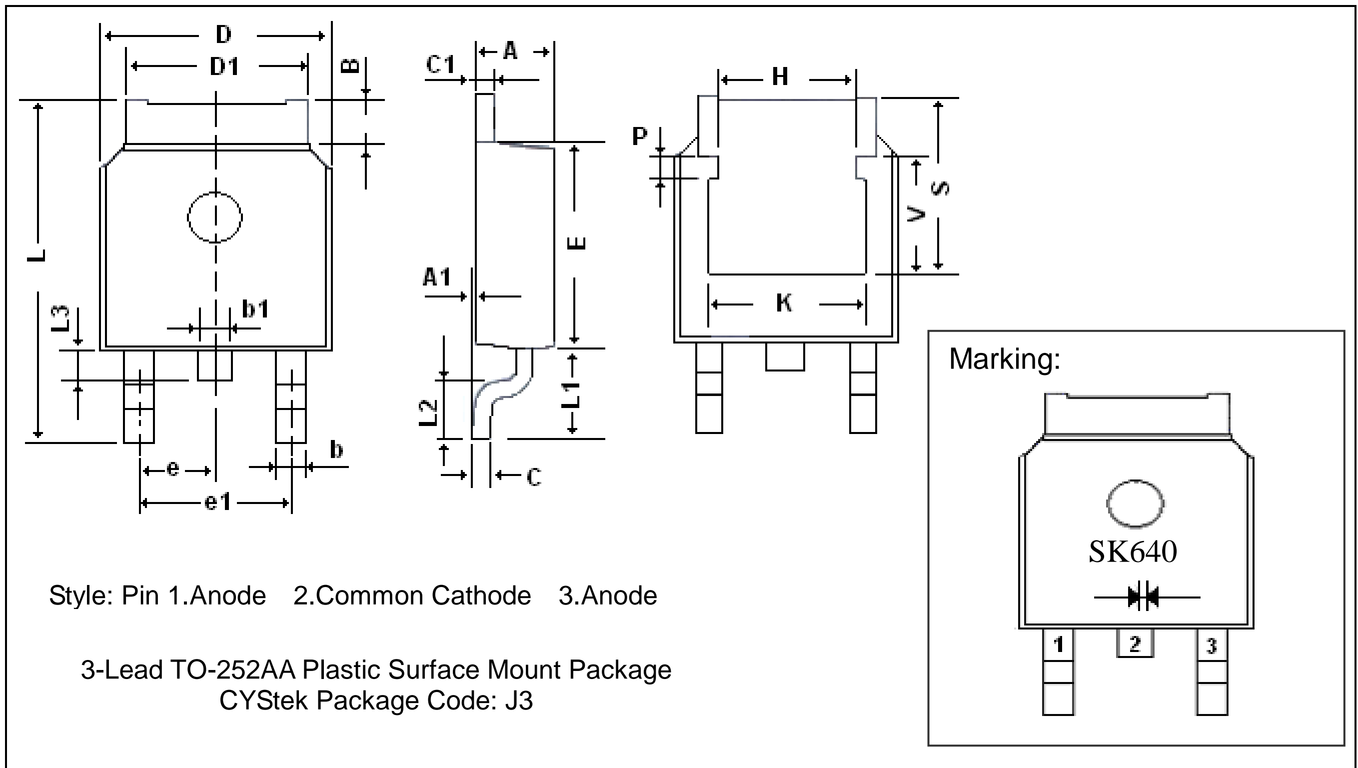
DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e1	0.177	0.185	4.500	4.700
A1	0.000	0.005	0.000	0.127	H	0.118	REF	3.000	REF
B	0.053	0.065	1.350	1.650	K	0.199	REF	5.000	REF
b	0.020	0.028	0.500	0.700	L	0.374	0.390	9.500	9.900
b1	0.028	0.035	0.700	0.900	L1	0.100	0.114	2.550	2.900
c	0.017	0.023	0.430	0.580	L2	0.055	0.070	1.400	1.780
c1	0.017	0.023	0.430	0.580	L3	0.014	0.026	0.350	0.650
D	0.250	0.262	6.350	6.650	P	0.028	REF	0.700	REF
D1	0.205	0.213	5.200	5.400	S	0.209	REF	5.300	REF
E	0.213	0.224	5.400	5.700	V	0.150	REF	3.800	REF
e	*0.091		*2.300						

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: KFC; pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

TO-252AA Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e1	0.177	0.185	4.500	4.700
A1	0.000	0.005	0.000	0.127	H	0.163	REF	4.140	REF
B	0.039	0.048	0.990	1.210	K	0.185	REF	4.700	REF
b	0.028	0.032	0.710	0.810	L	0.382	0.400	9.700	10.100
b1	0.028	0.035	0.700	0.900	L1	0.100	0.114	2.550	2.900
c	0.017	0.023	0.430	0.580	L2	0.055	0.070	1.400	1.780
c1	0.017	0.023	0.430	0.580	L3	0.014	0.026	0.350	0.650
D	0.255	0.265	6.470	6.730	P	0.026	REF	0.650	REF
D1	0.207	0.213	5.250	5.410	S	0.207	REF	5.250	REF
E	0.235	0.245	5.970	6.230	V	0.150	REF	3.800	REF
e	*0.090		*2.286						

Notes: 1.Controlling dimension: millimeters.
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3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: KFC; pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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