

## 1A General Purpose Rectifier

# DI4005SH

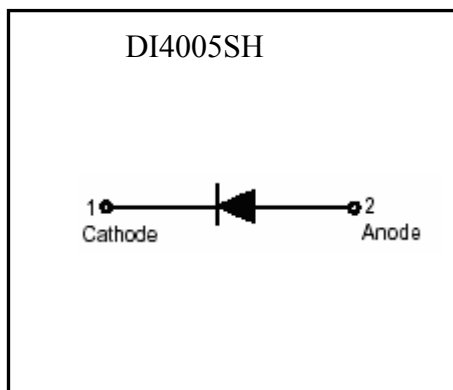
### Features

- High current capability
- Low power loss, high efficiency
- Ultra high-speed switching
- Low profile surface mounted package in order to minimize board space
- Pb-free package

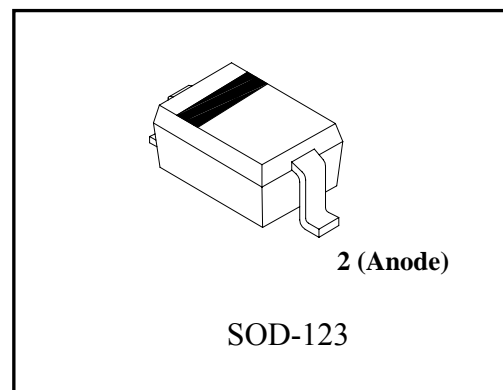
### Mechanical data

- Case : Molded plastic, JEDEC SOD-123.
- Epoxy : UL94-V0 rated flame retardant
- Terminals : Plated terminals, solderable per MIL-STD-202 method 208
- Polarity : Indicated by cathode band
- Mounting position : Any
- Weight : approx. 0.04 gram

### Symbol



### Outline





**Absolute Maximum Ratings** (TA=25°C, unless otherwise noted)

Parameters	Conditions	Symbol	Min	Typ	Max	Units
Repetitive peak reverse voltage		V <sub>RRM</sub>			500	V
RMS voltage		V <sub>RMS</sub>			350	V
Continuous reverse voltage		V <sub>R</sub>			500	V
Forward rectified current	Single phase half wave, 60Hz @T <sub>J</sub> =25°C	I <sub>F(AV)</sub>			1	A
Forward surge current	8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I <sub>FSM</sub>			10	A
Thermal resistance	Junction to Ambient	R <sub>θJA</sub>		250		°C/W
Storage temperature range		T <sub>stg</sub>	-55		150	°C
Operating junction temperature range		T <sub>j</sub>	-55		150	°C

**Characteristics** (TA=25°C, unless otherwise noted)

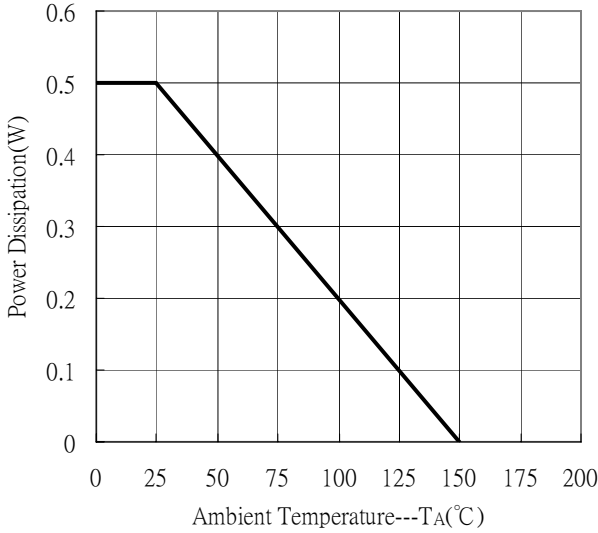
Characteristic	Symbol	Condition	Min.	Typ	Max.	Unit
	V <sub>R</sub>	I <sub>R</sub> =100μA	500	-	-	V
Forward Voltage	V <sub>F 1</sub>	I <sub>F</sub> =100mA	-	-	0.9	V
	V <sub>F 2</sub>	I <sub>F</sub> =1A	-	-	1.25	
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> =500V	-	-	100	nA
	I <sub>R</sub>	V <sub>R</sub> =500V, T <sub>A</sub> =125°C	-	-	10	μA
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> =1V, f=1MHz	-	5	-	pF

**Ordering Information**

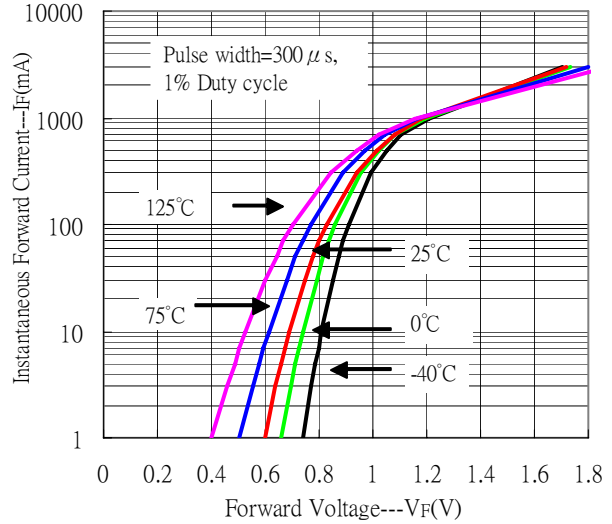
Device	Package	Shipping
DI4005SH-0-T1-G	SOD-123 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

## Typical Characteristics

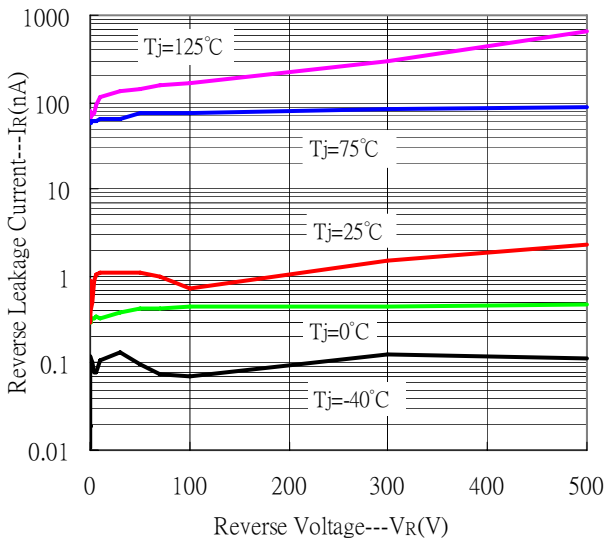
Power Derating Curve



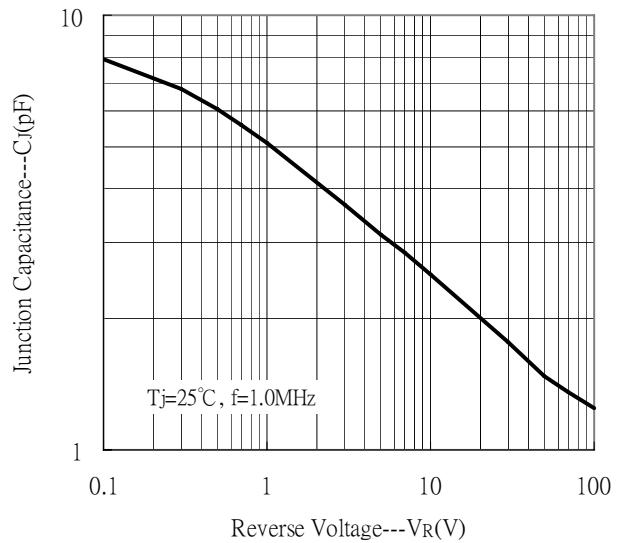
Forward Current vs Forward Voltage



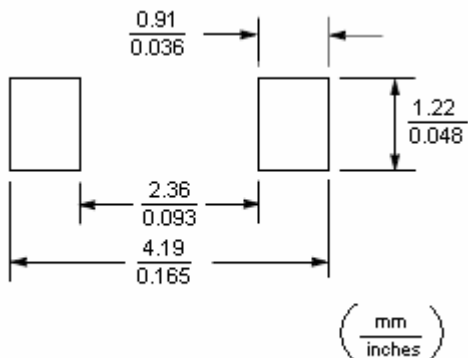
Reverse Leakage Current vs Reverse Voltage



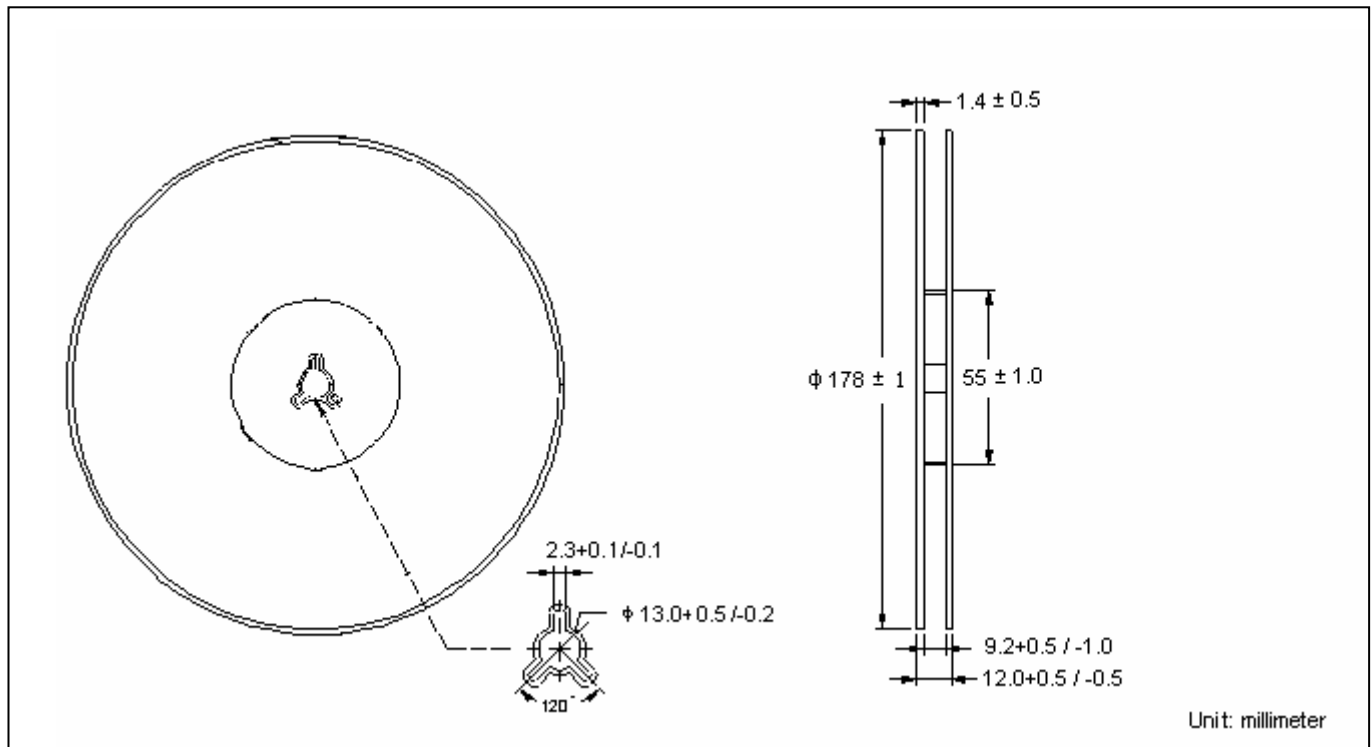
Junction Capacitance vs Reverse Voltage



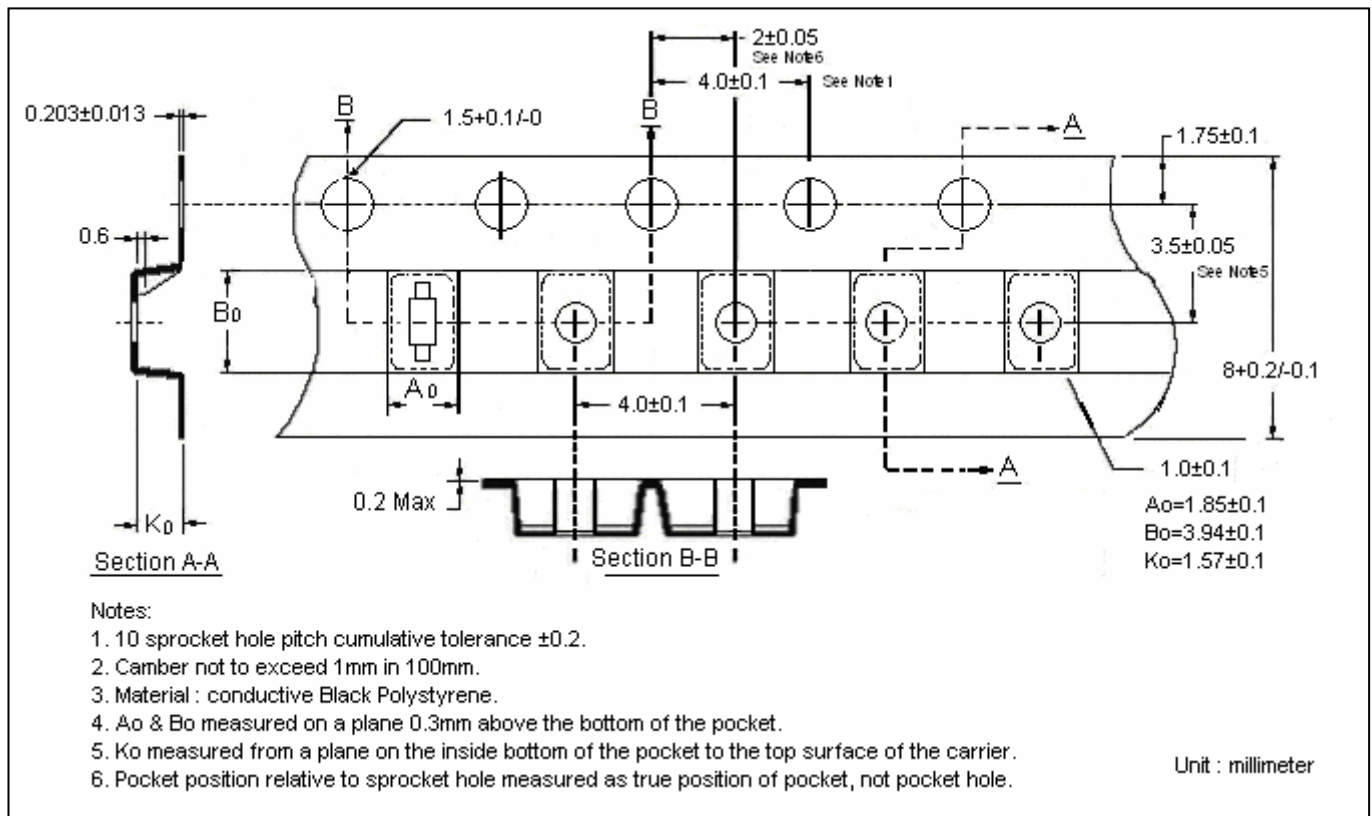
## Recommended Soldering Footprint



### Reel Dimension



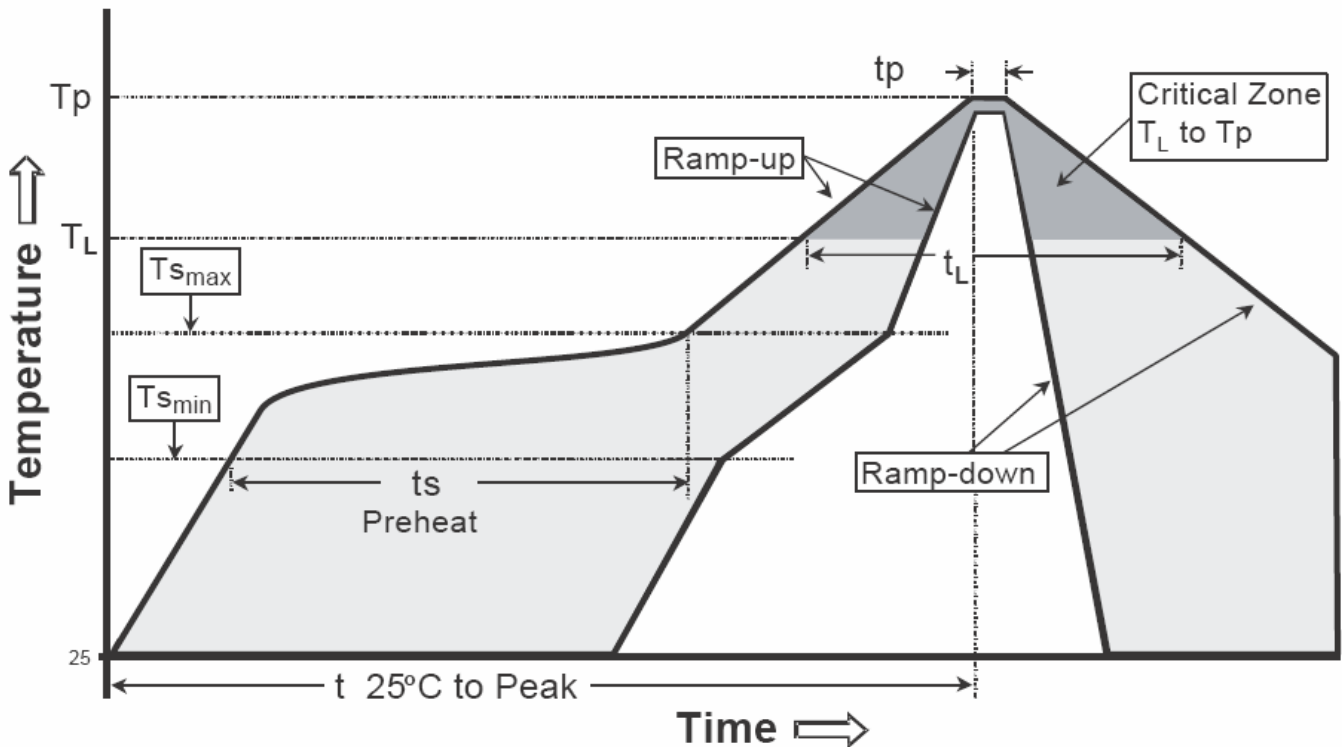
### Carrier Tape Dimension



**Recommended wave soldering condition**

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

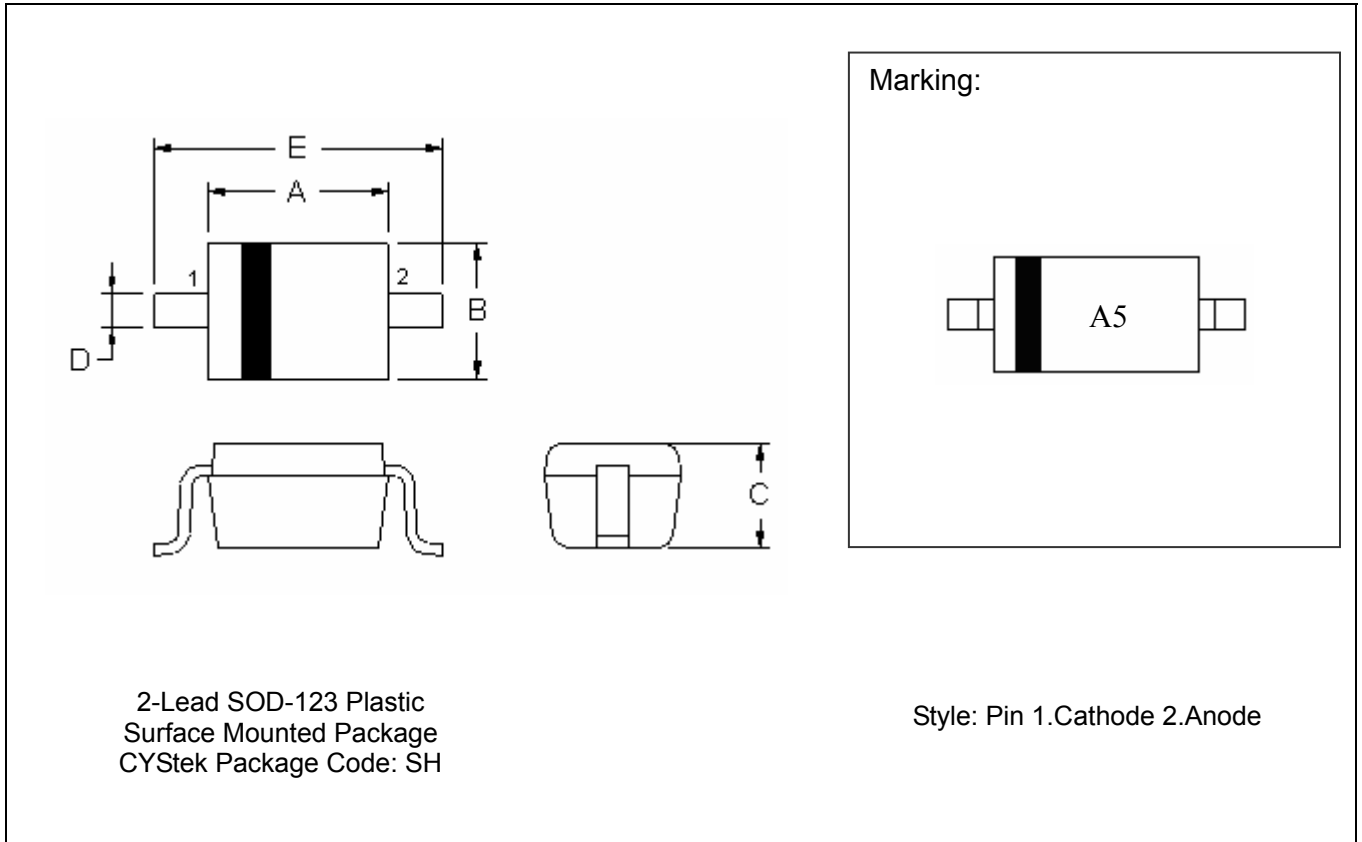
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Temperature(T <sub>p</sub> )	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.

Note : All temperatures refer to topside of the package, measured on the package body surface.

**SOD-123 Dimension**



2-Lead SOD-123 Plastic  
 Surface Mounted Package  
 CYStek Package Code: SH

Style: Pin 1.Cathode 2.Anode

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.102	0.110	2.600	2.800	D	0.018	0.026	0.450	0.650
B	0.059	0.067	1.500	1.700	E	0.140	0.152	3.550	3.850
C	0.041	0.049	1.050	1.250					

Notes: 1.Controlling dimension : millimeters.  
 2.Lead thickness specified per L/F drawing with solder plating.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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