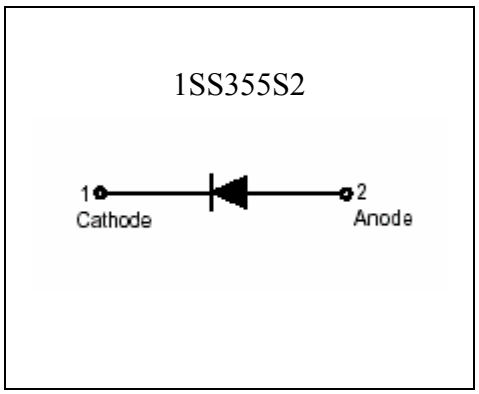
High –speed switching diode

1SS355S2

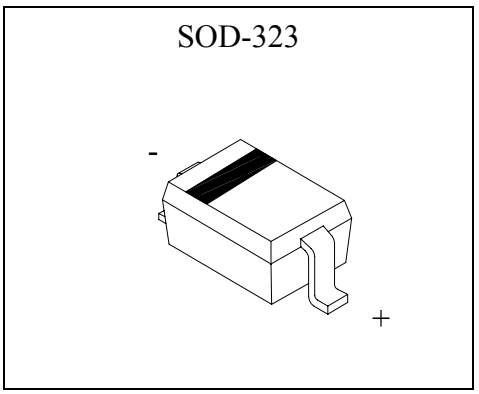
Description

The 1SS355S2 is a high-speed switching diode fabricated in planar technology, and encapsulated in the small SOD-323 plastic SMD package.

Symbol



Outline



Features

- Small plastic SMD package
- High switching speed: max. 4ns
- Reverse voltage: max. 100V
- Peak forward surge current: max. 500mA.
- Pb-free package

Applications

- High-speed switching in thick and thin-film circuits.

Absolute Maximum Ratings @T_A=25℃

Parameters	Symbol	Min	Max	Unit
DC Reverse voltage	V_R	-	100	V
Peak reverse voltage	V_{RM}	-	110	V
Average rectified output current	I_O	-	100	mA
Forward current	I_{FM}	-	225	mA
Peak forward surge current	I_{FSM}		500	mA
Junction Temperature	T_j	-	125	°C
Storage Temperature	T_{stg}	-55	+125	°C

Electrical Characteristics @ T_A=25℃ unless otherwise specified

Parameters	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse breakdown voltage	V_R	I_R=100μA	100	-	-	V
Forward voltage	V_F	I_F=100mA	-	-	1.2	V
Reverse leakage current	I_R	V_R=100V	-	-	0.1	μA
Diode capacitance	C_D	V_R=0.5V, f=1MHz	-	-	3	pF
Reverse recovery time	trr	when switched from I_F=10mA to I_R=10mA,R_L=100Ω, measured at I_R=1mA	-	-	4	ns

Thermal Characteristics

Symbol	Parameter	Conditions	Max	Unit
Ptot, Ta=25℃ Derate above 25℃	Total device dissipation on FR-4 board	Note 1	200 1.57	mW mW/℃
Rth, j-a	Thermal resistance from junction to ambient	Note 1	635	℃/W

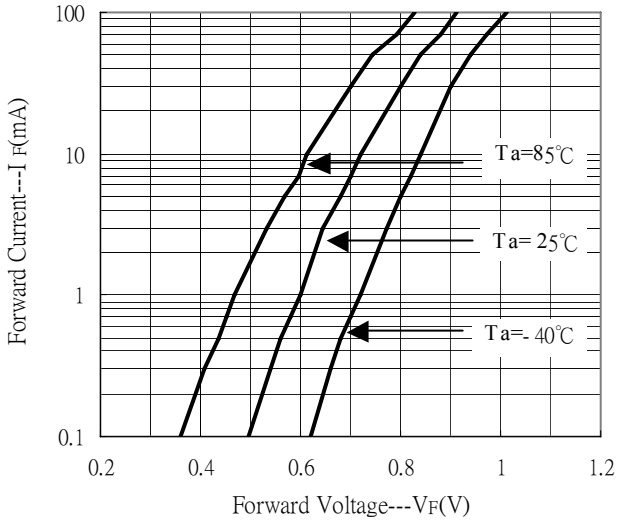
Note 1: Device mounted on an FR-4 PCB.

Ordering Information

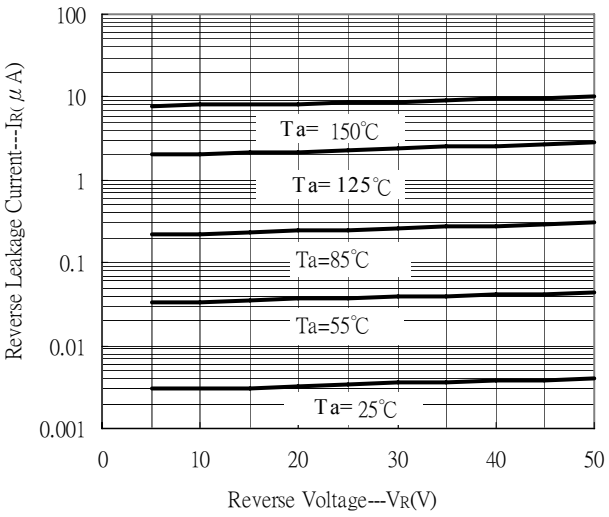
Device	Package	Shipping	Marking
1SS355S2	SOD-323 (Pb-free package)	3000 pcs / Tape & Reel	5D or A

Characteristic Curves

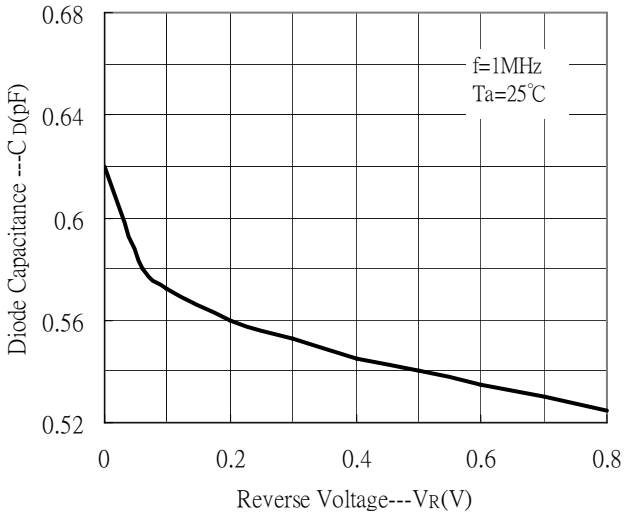
Forward Current vs Forward Voltage



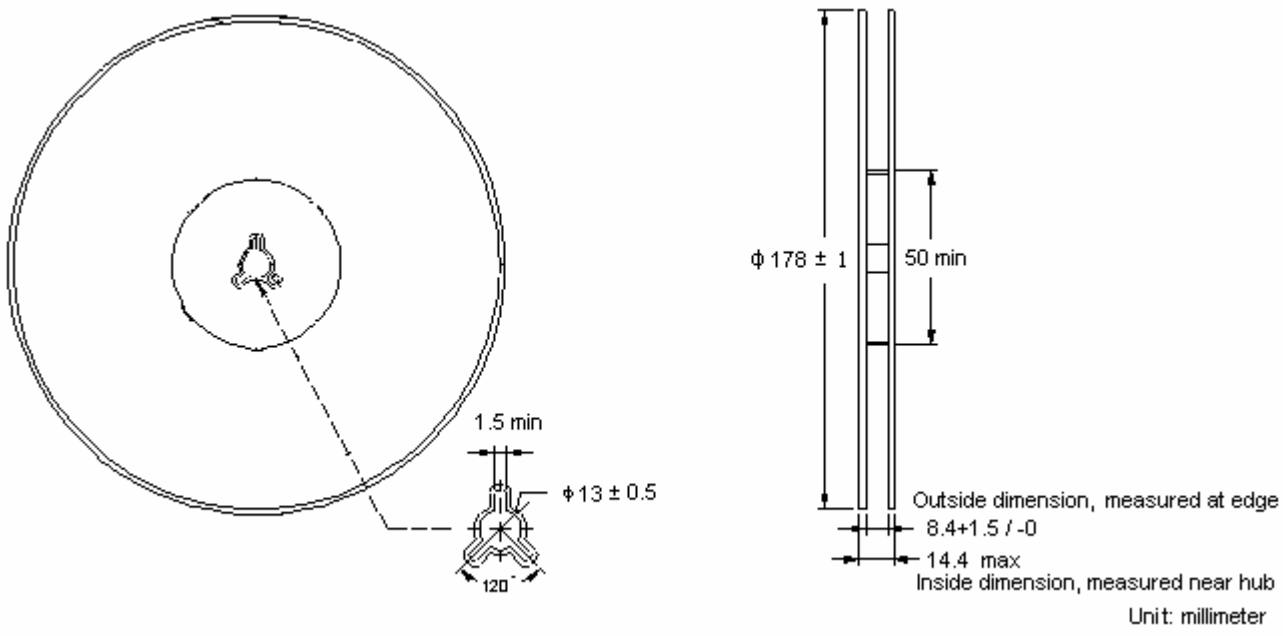
Reverse Leakage Current vs Reverse Voltage



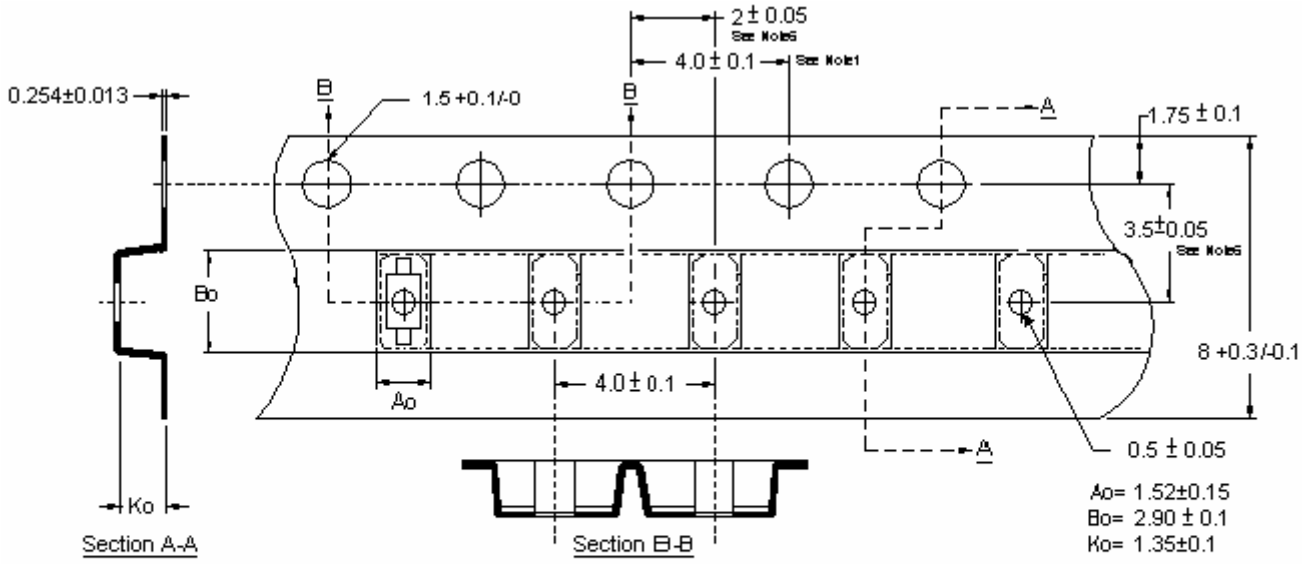
Capacitance vs Reverse Voltage



Reel Dimension



Carrier Tape Dimension



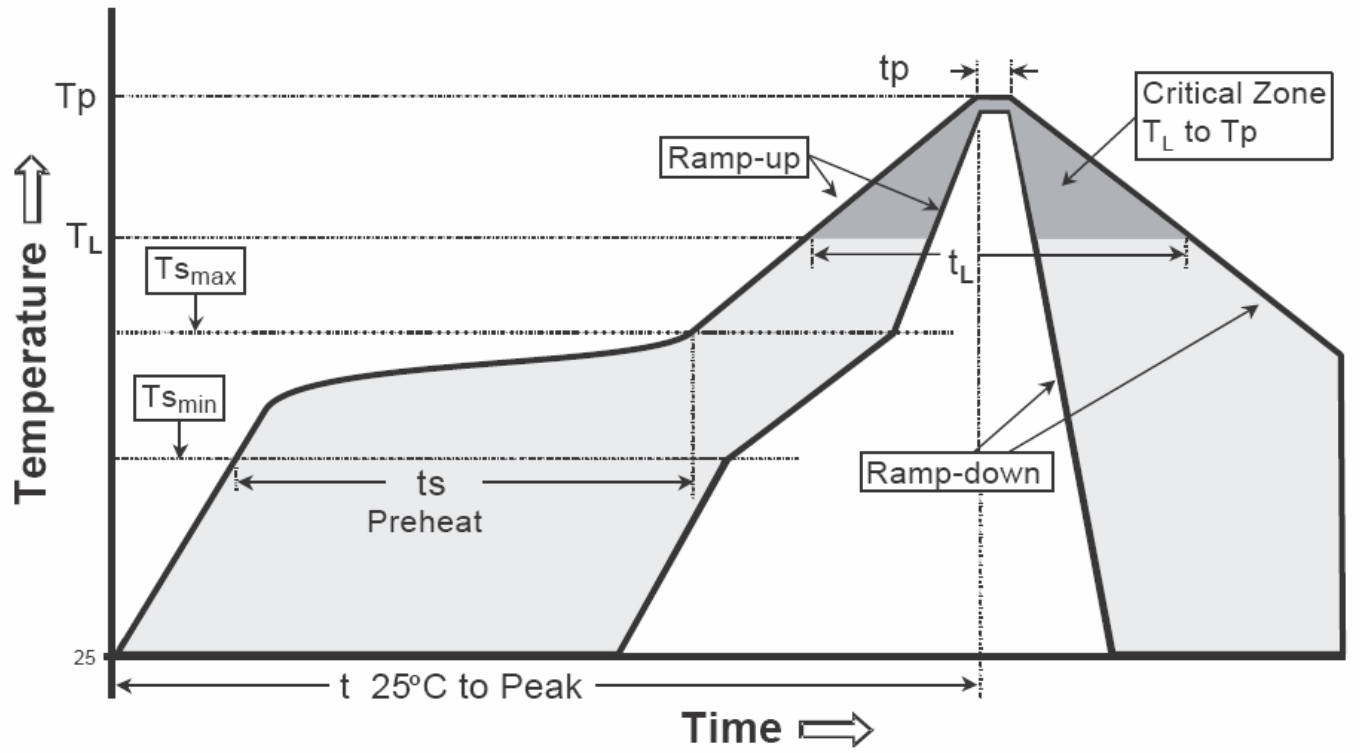
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of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

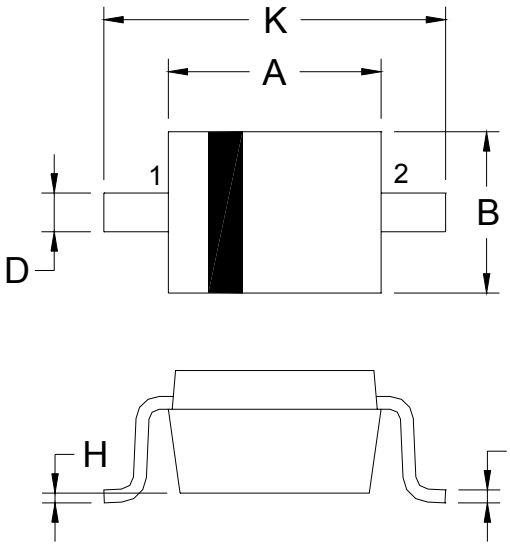
Recommended temperature profile for IR reflow



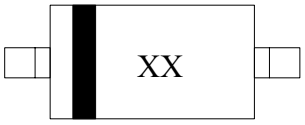
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (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.

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

SOD-323 Dimension



Marking:



XX represents :
Normal : 5D
Special : A

Style: Pin 1.Cathode 2.Anode

2-Lead SOD-323 Plastic Surface Mounted Package,
CYStek Package Code: S2

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0630	0.0709	1.60	1.80	E	0.0060 REF		0.15 REF	
B	0.0453	0.0531	1.15	1.35	H	0.0000	0.0040	0.00	0.10
C	0.0315	0.0394	0.80	1.00	J	0.0035	0.0070	0.089	0.177
D	0.0098	0.0157	0.25	0.40	K	0.0906	0.1063	2.30	2.70

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.