



High voltage switching diode

BAS21S2

Description

High voltage switching diode encapsulated in a SOD-323 small plastic SMD package.

Features

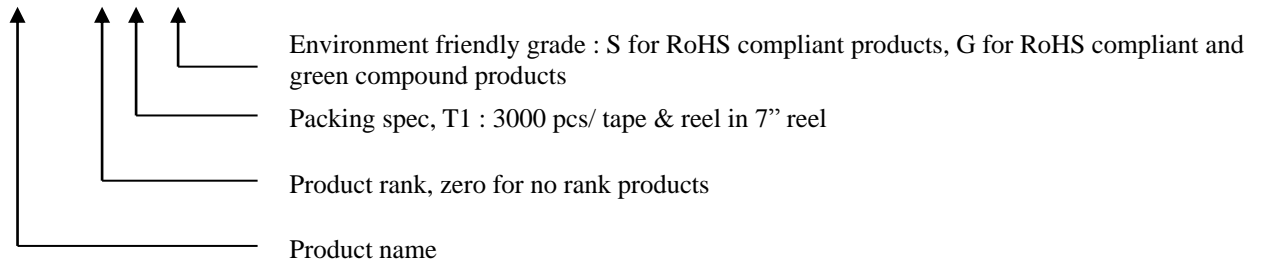
- Fast switching speed
- Low forward voltage drop
- Small plastic SMD package
- Pb-free lead plating package

Mechanical Data

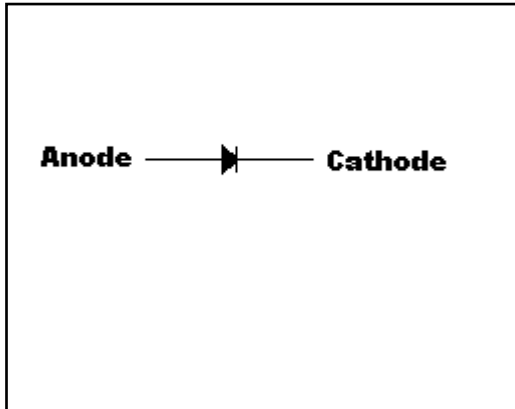
- Case: Molded Plastic, JEDEC SOD-323.
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: Indicated by cathode band.
- Mounting Position : Any.
- Weight: 0.0045 gram, 0.000159 ounce

Ordering Information

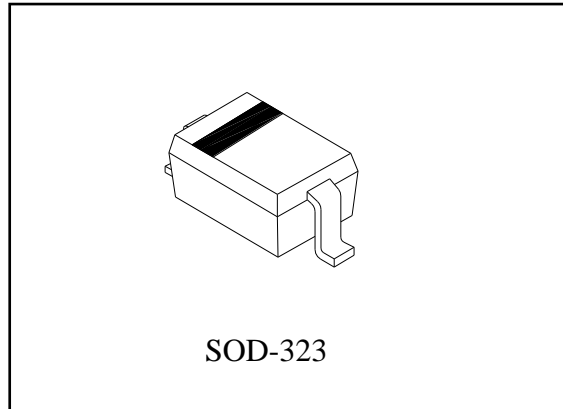
Device	Package	Shipping
BAS21S2-0-T1-G	SOD-323 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel



Symbol



Outline



Absolute Maximum Ratings($T_a=25^{\circ}\text{C}$, unless otherwise specified)

- Maximum Temperatures
 - Storage Temperature T_{stg} -55~+150 °C
 - Junction Temperature T_j +150 °C
- Maximum Power Dissipation
 - Total Power Dissipation P_{tot} (Note)..... 200 mW
 - Derate above 25°C 1.57mW/°C
- Maximum Voltages and Currents
 - Continuous Reverse Voltage V_R 250V
 - Continuous Forward Current I_F (Note)..... 200 mA
 - Peak Repetitive Forward Current I_{FRM} (Note).....625 mA
- Thermal Resistance, Junction to Ambient Air $R_{\theta JA}$625°C/W

Note : Parts mounted on FR-5 board with minimum pad.

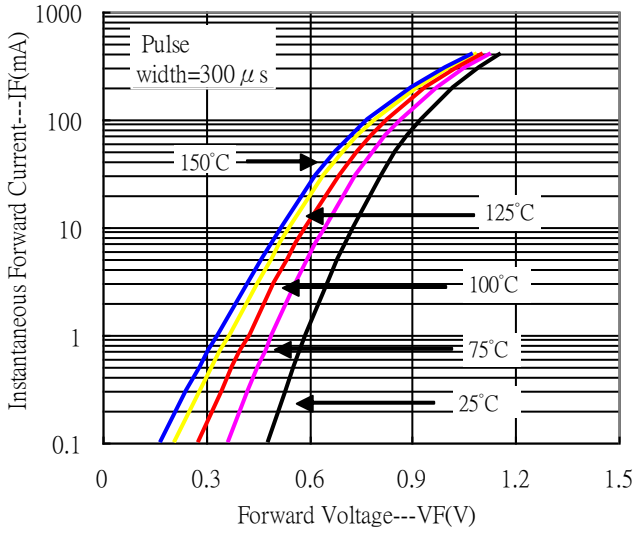
Characteristics ($T_a=25^{\circ}\text{C}$)

Characteristic	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	V_{BR}	$I_R=100\mu\text{A}$	250	-	V
Forward Voltage (Note)	$V_F(1)$	$I_F=100\text{mA}$	-	1	V
	$V_F(2)$	$I_F=200\text{mA}$	-	1.25	V
Reverse Leakage Current (Note)	$I_R(1)$	$V_R=200\text{V}, T_j=25^{\circ}\text{C}$	-	100	nA
	$I_R(2)$	$V_R=200\text{V}, T_j=150^{\circ}\text{C}$		100	μA
Diode Capacitance	C_D	$V_R=0\text{V}, f=1\text{MHz}$	-	5	pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=30\text{mA RL}=100\Omega$ measured at $I_R=3\text{mA}$	-	50	ns

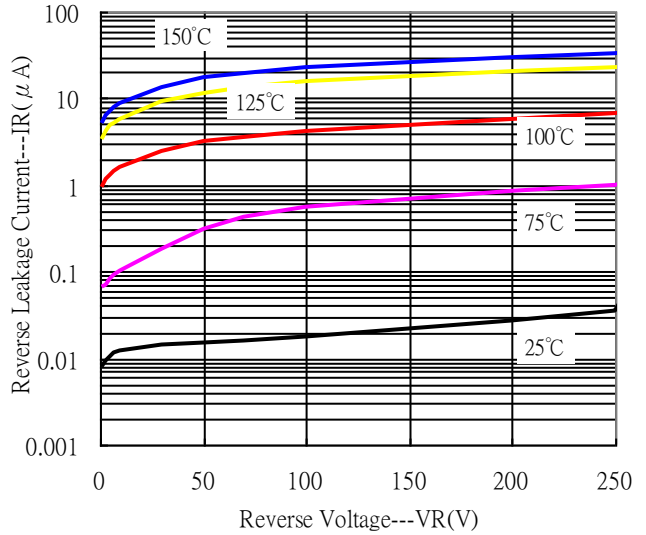
Notes: Pulse test, $t_p=380\mu\text{s}$, duty cycle<2%.

Typical Characteristics

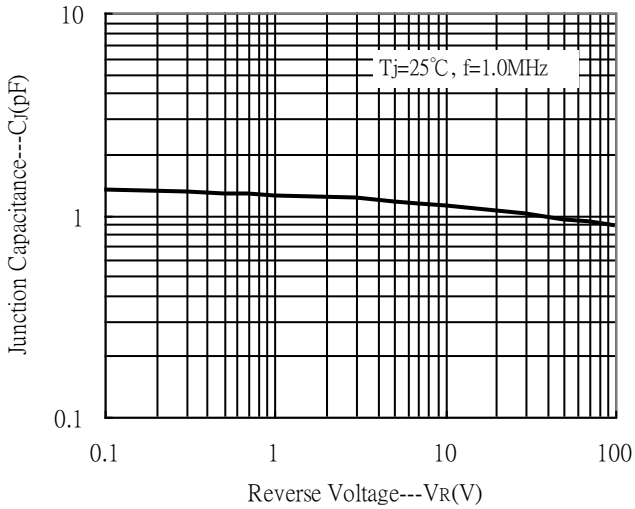
Forward Current vs Forward Voltage



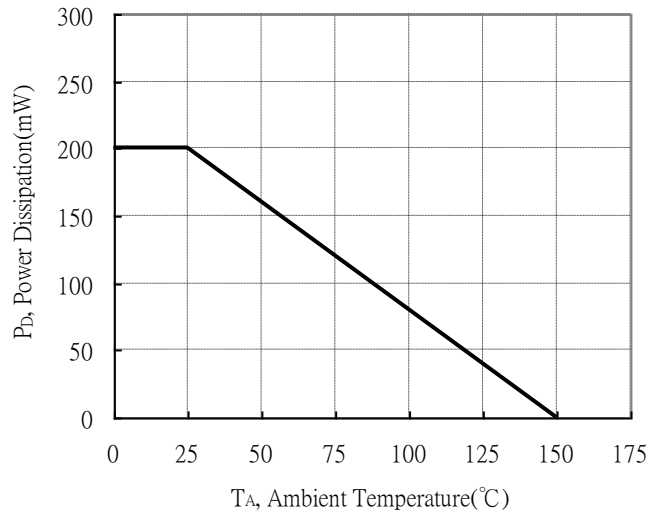
Reverse Leakage Current vs Reverse Voltage



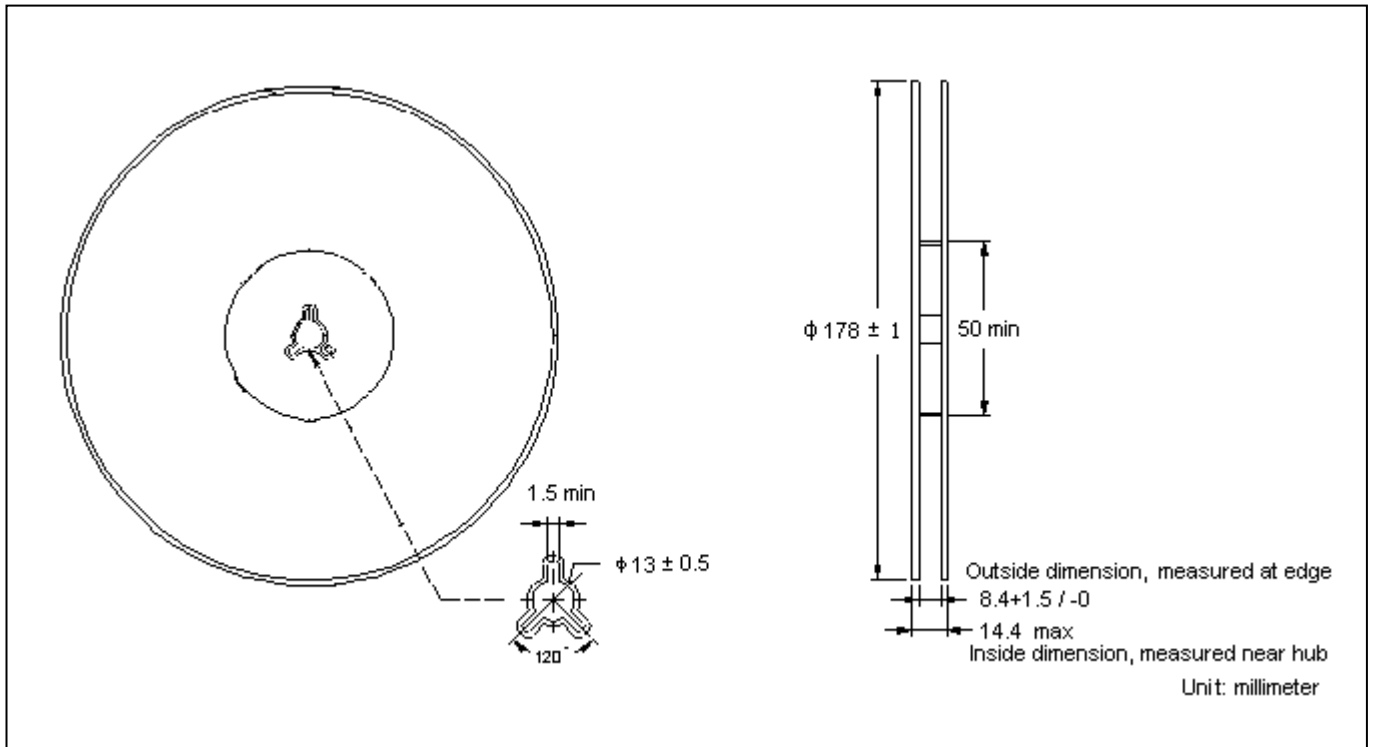
Junction Capacitance vs Reverse Voltage



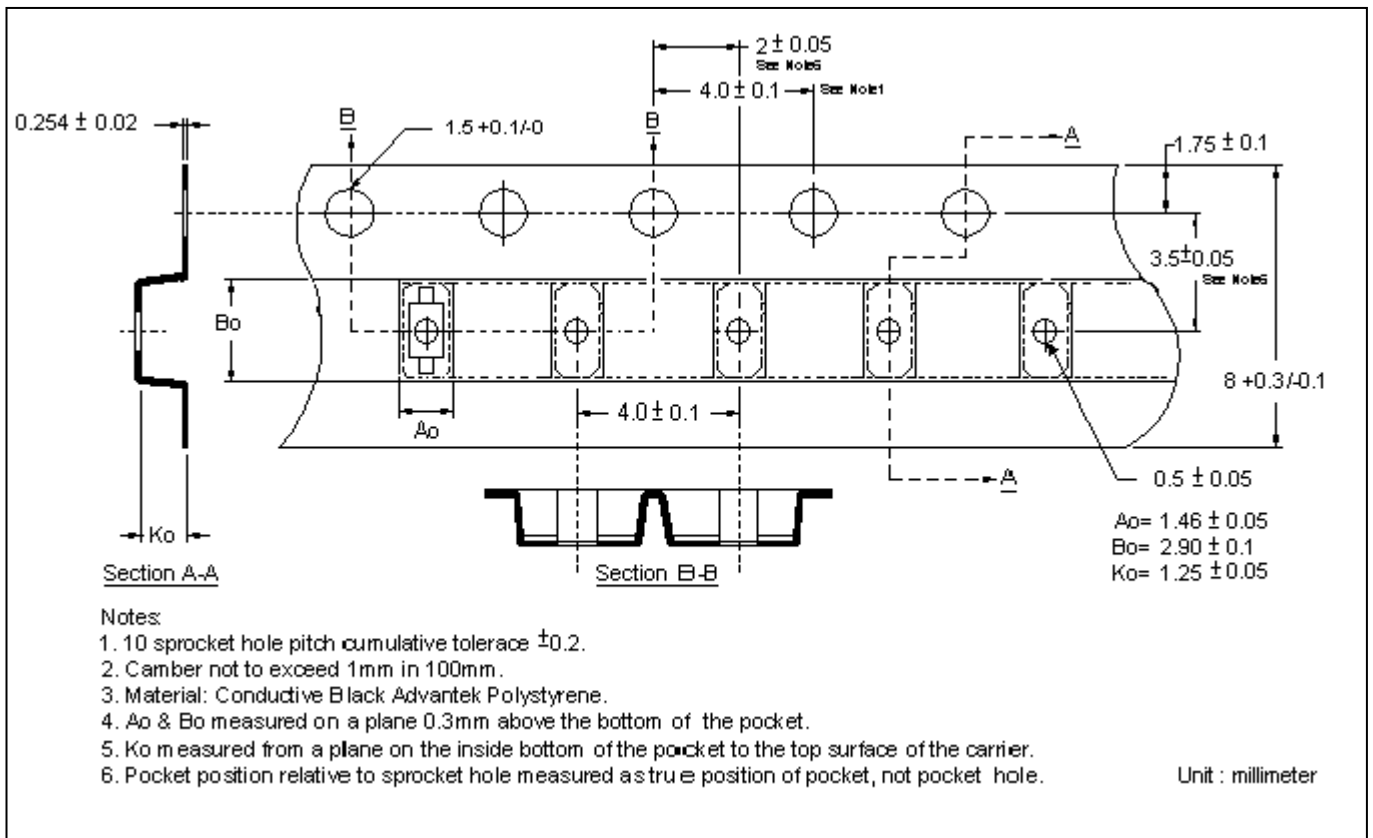
Power Derating Curve



Reel Dimension



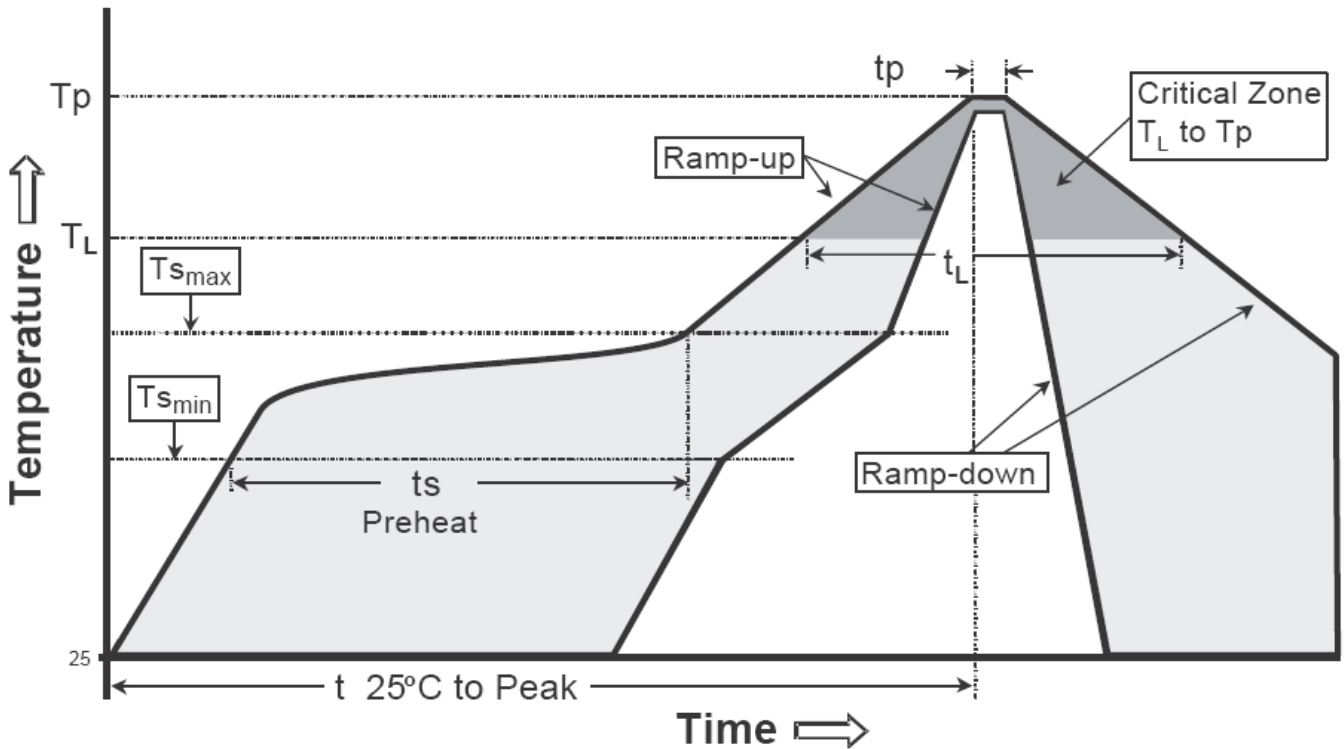
Carrier Tape Dimension



Recommended wave soldering condition

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

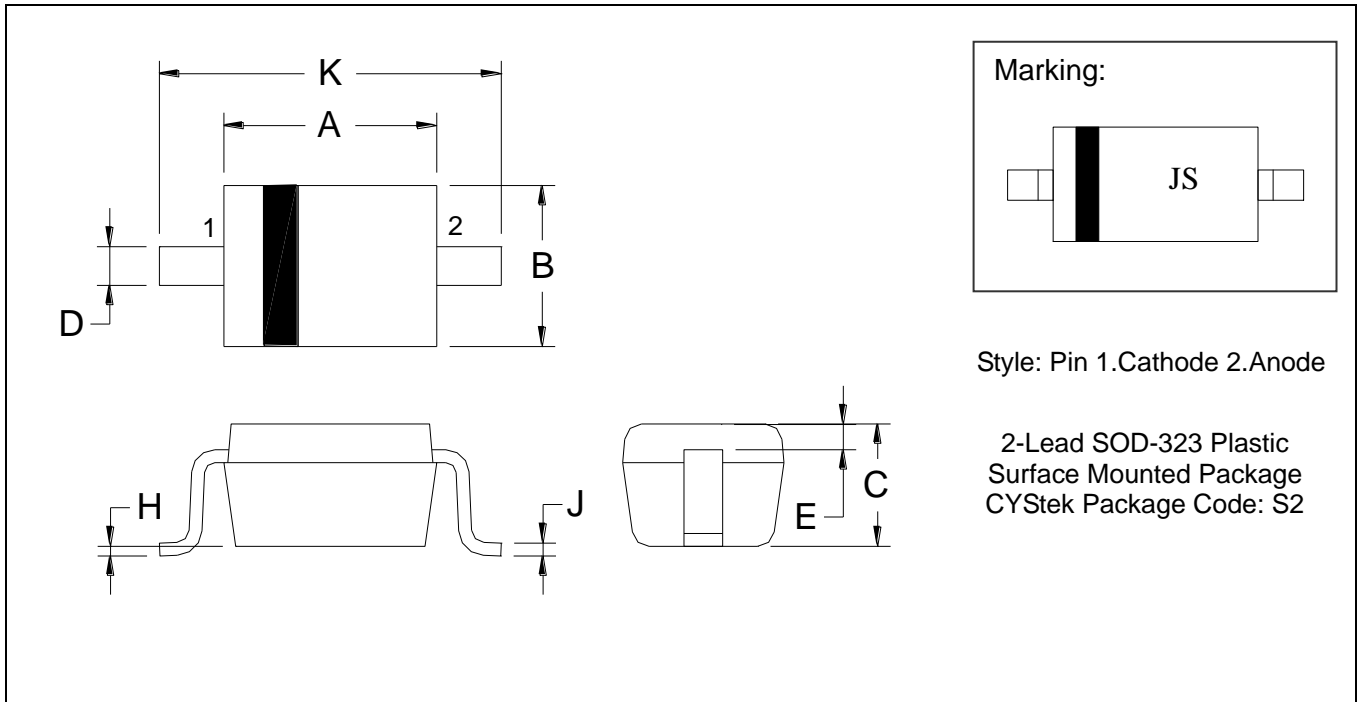
Recommended temperature profile for IR reflow



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



*: 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	-	0.15	-
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	0.18
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.

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