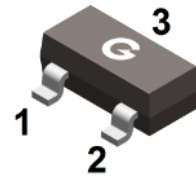
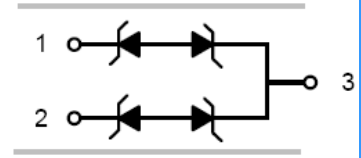


Features

- ESD / transient protection of high speed data lines
 - IEC 61000-4-2 (ESD): $\pm 25\text{kV}$ (air), $\pm 20\text{kV}$ (contact)
 - IEC 61000-4-4 (EFT): 40A ($t_p = 5/50\text{ns}$)
 - IEC 61000-4-5 (Lighting): 12A ($t_p = 1.2/50\mu\text{s}$)
- Protects one bidirectional line or two unidirectional lines
- 150 watts peak pulse power ($t_p = 8/20\mu\text{s}$)
- Working voltage: $V_{\text{RWM}} = 24\text{V}$
- Low reverse clamping voltage
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-23

Typical Applications

- Computers and peripherals
- Portable electronics
- Industrial controls
- Set-Top Box
- Servers, Notebook, and Desktop PC

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TSM24BCL	SOT-23	3000 pcs / Tape & Reel	24BCL

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
IEC 61000-4-2; ESD (Air)	$V_{\text{ESD-A}}$	± 25	kV
IEC 61000-4-2; ESD (Contact)	$V_{\text{ESD-C}}$	± 20	kV
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	150	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	3	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Lead Solder Temperature (10 Seconds Duration)	T_L	260	°C
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	556	°C/W
Junction Temperature	T_J	-40 ~ +150	°C
Storage Temperature Range	T_{STG}	-40 ~ +150	°C

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}		-	-	24	V
Reverse Breakdown Voltage	$V_{(BR)}$	$I_T = 1\text{mA}$	26.7	-	32	V
Reverse Leakage Current	I_R	$V_{RWM} = 24\text{V}$	-	-	0.1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	35	V
		$I_{PP} = 3\text{A}$, $t_p = 8/20\mu\text{s}$	-	-	50	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ (Pin 1 to 3 or Pin 2 to 3)	-	1	1.5	pF

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

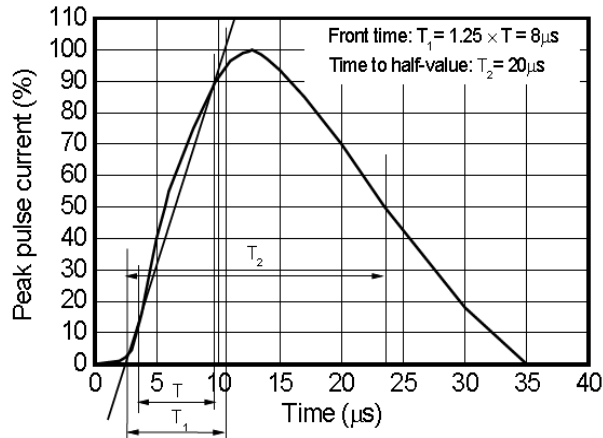


Fig 1 8/20 μs waveform per IEC61000-4-5

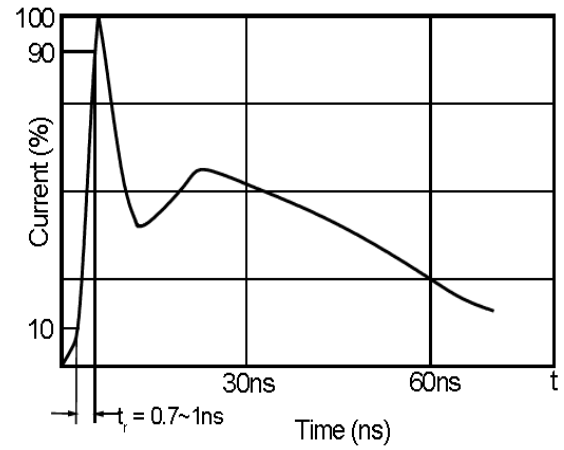


Fig 2 ESD pulse waveform according to IEC61000-4-2

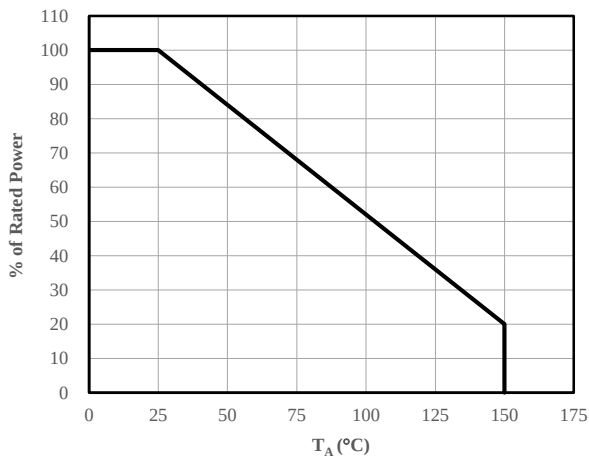


Fig 3 Power Derating Curve

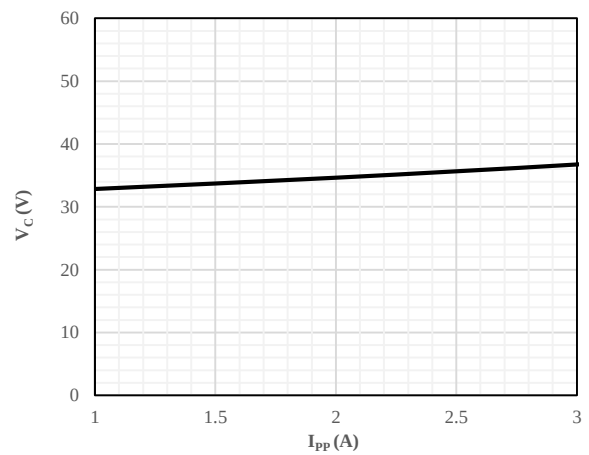
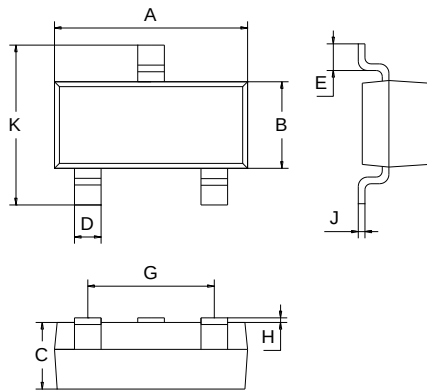


Fig 4 Clamping Voltage vs. Peak Pulse Current

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

