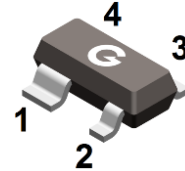
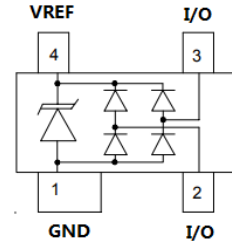


Features

- ESD / transient protection of high speed data lines
 - IEC 61000-4-2 (ESD): ± 25 kV (air), ± 25 kV (contact)
- Uni-directional ESD protection of two lines
- Working voltage: $V_{RWM} = 5V$
- Low leakage current
- Ultra low capacitance
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-143

Mechanical Data

- Case: SOT-143
- 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
TSR05L	SOT-143	3000 pcs / Tape & Reel	S5

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

Parameter	Symbol	Value	Unit
IEC 61000-4-2; ESD (Air)	V_{ESD-A}	± 25	kV
IEC 61000-4-2; ESD (Contact)	V_{ESD-C}	± 25	kV
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	90	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	3.5	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	120	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*1}	$R_{\theta JL}$	150	$^\circ\text{C/W}$
Operating Temperature	T_J	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper

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}		-	-	5	V
Reverse Breakdown Voltage	$V_{(BR)}$	$I_T = 1\text{mA}$	6	-	10	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$	-	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (I/O to GND, $t_p = 8/20\mu\text{s}$)	-	-	10	V
		$I_{PP} = 3.5\text{A}$ (I/O to GND, $t_p = 8/20\mu\text{s}$)	-	-	25	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$ (I/O to I/O)	-	0.3	0.4	pF
		$V_R = 0\text{V}$, $f = 1\text{MHz}$ (I/O to GND)	-	0.5	0.8	pF

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

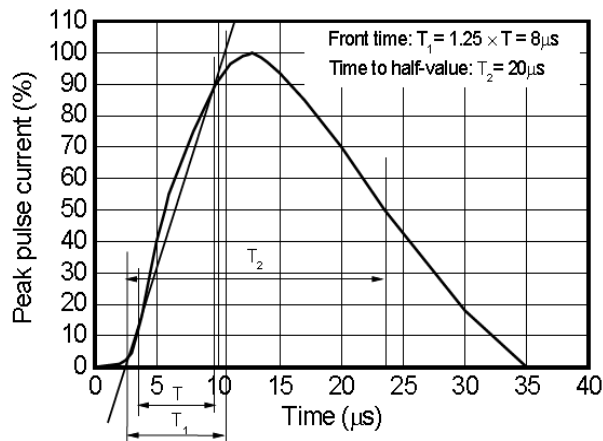


Fig 1 8/20 μs waveform per IEC61000-4-5

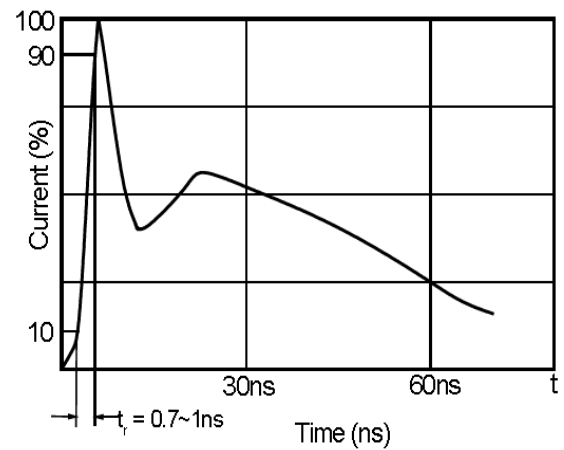


Fig 2 ESD pulse waveform according to IEC61000-4-2

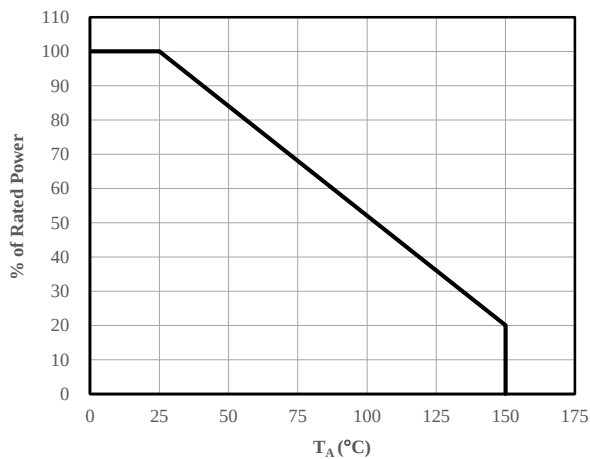


Fig 3 Power Derating Curve

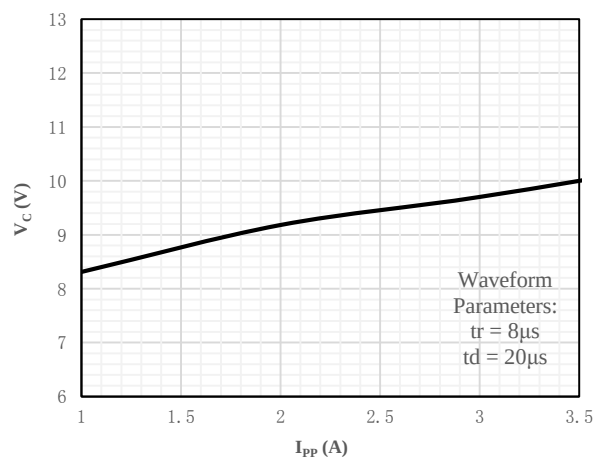
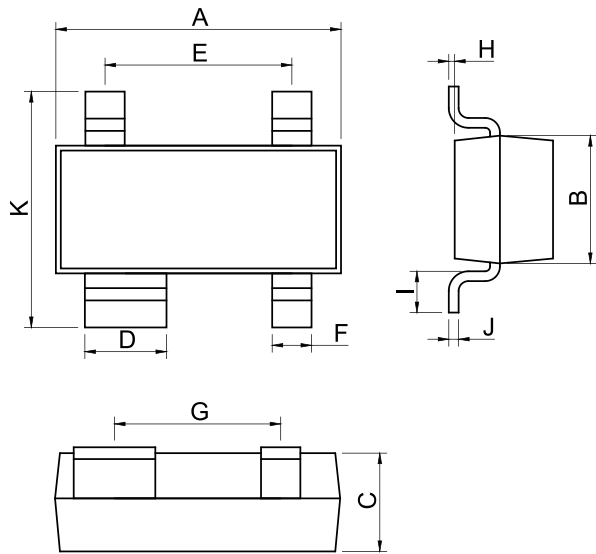


Fig 4 Clamping Voltage vs. Peak Pulse Current

Package Outline Dimensions (Unit: mm)



SOT-143		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.78	0.88
E	1.80	2.00
F	0.37	0.43
G	1.59	1.79
H	0.02	0.10
I	0.30	0.50
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-143

