

Product Summary

The GESDW5V0G35 provides a typical line to line capacitance of 0.45pF and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for USB 2.0 applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT(electrical fast transients).

Feature

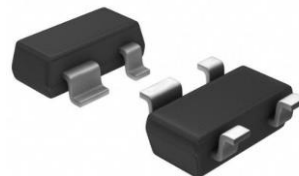
- Low capacitance
- Working voltages : 5V
- Low leakage current
- Response Time is < 1 ns
- Low capacitance (<1.2pF) for high-speed interfaces
- No insertion loss to 3.0GHz
- Solid-state silicon avalanche technology
- Device Meets MSL 1 Requirements
- ROHS compliant

Application

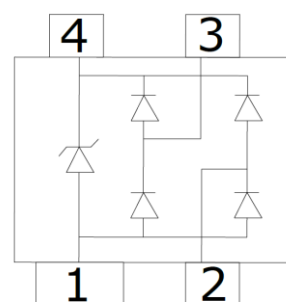
- Comp xDSL
- USB 1.1/2.0/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Notebook Computers
- Set Top Box
- Projection TVusers and peripherals

Marking: R05

SOT-143



Schematic diagram



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

Parameter	Symbol	Value	Unit
IEC 61000-4-2 ESD Voltage Air Model	$V_{\text{ESD}}^{1)}$	± 15	kV
IEC 61000-4-2 ESD Voltage Contact Model		± 8	
JESD22-A114-B ESD Voltage Per Human Body Model		± 8	
ESD Voltage Machine Model		± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{2)}$	80	W
Peak Pulse Current	$I_{\text{PP}}^{2)}$	5	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~ +150	$^{\circ}\text{C}$

- 1) Device stressed with ten non-repetitive ESD pulses.
- 2) Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

ESD standards compliance

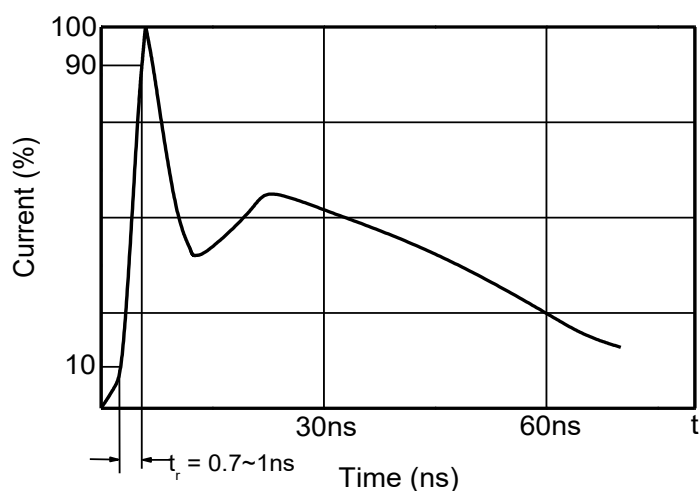
IEC61000-4-2 Standard

Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

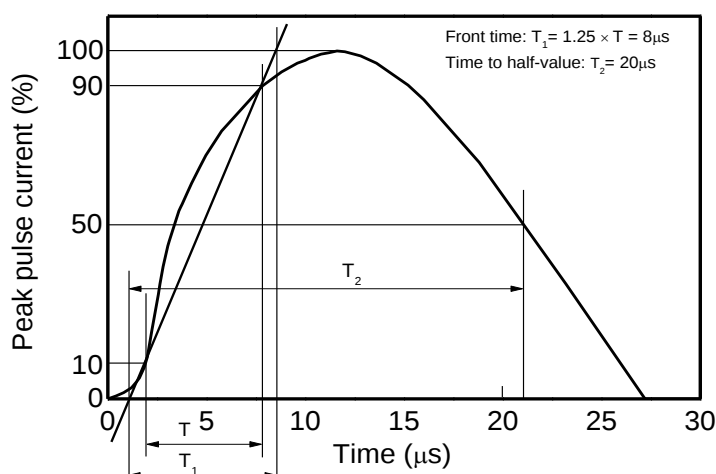
JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999

Contact discharge current waveform per IEC61000-4-2

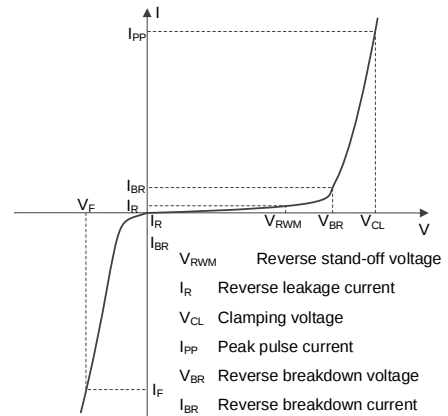


8/20 μs waveform per IEC61000-4-5



Electrical Parameter

Symbol	Parameter
V _C	Clamping Voltage @ I _{PP}
I _{PP}	Peak Pulse Current
V _{BR}	Breakdown Voltage @ I _{BR}
I _{BR}	Test Current
I _R	Reverse Leakage Current @ V _{RWM}
V _{RWM}	Reverse Standoff Voltage



V-I characteristics for a Uni-directional TVS

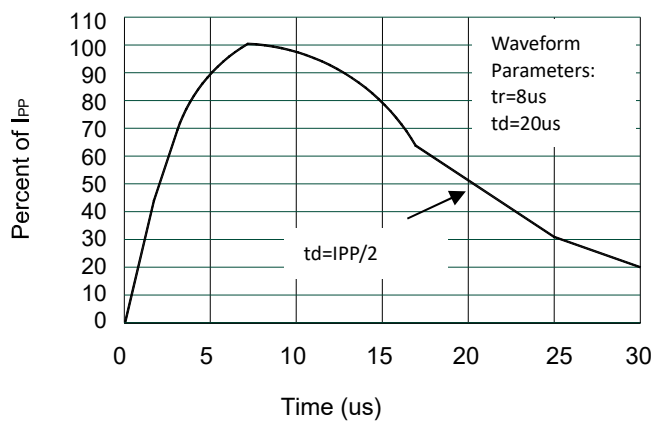
Electrical Characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse standoff voltage	V _{RWM} ¹⁾	Any I/O to Ground			5	V
Reverse leakage current	I _R	V _{RWM} =5V, Any I/O to GND			1	uA
Breakdown voltage	V _{BR}	I _T =1mA, Any I/O to GND	6			V
Diode Forward Voltage	V _F	I _F =15mA		0.85	1.2	V
Clamping voltage	V _C ²⁾	I _{PP} =1A, any I/O to GND		8.5	10	V
		I _{PP} =5A, any I/O to GND		11	16	V
Peak Pulse Current	I _{PP}	t _p =8/20μs			5	A
Channel Input Capacitance	C _{IN}	V _{IN} =0V, f=1MHz, I/O to GND		0.90	1.2	pF
		V _{IN} =0V, f=1MHz, I/O to I/O		0.45	0.6	pF

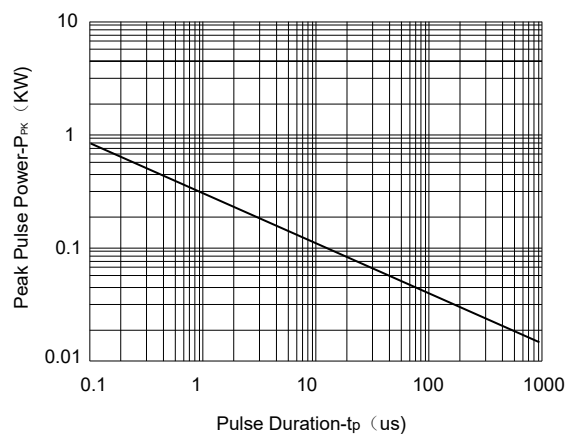
1) Other voltages available upon request.

2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

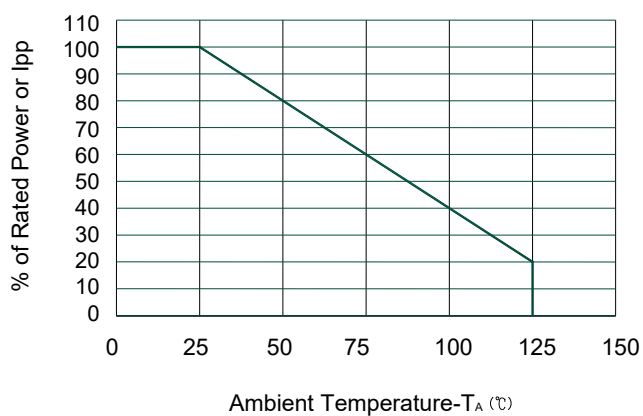
Typical Characteristics



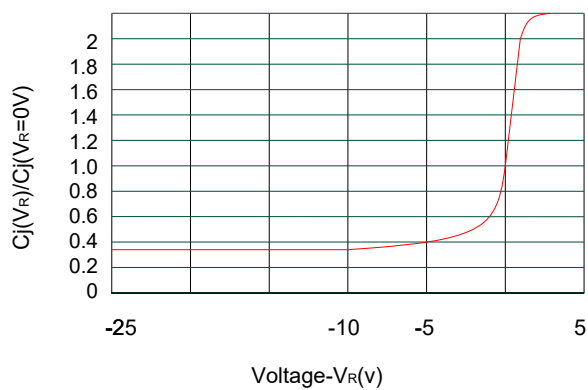
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



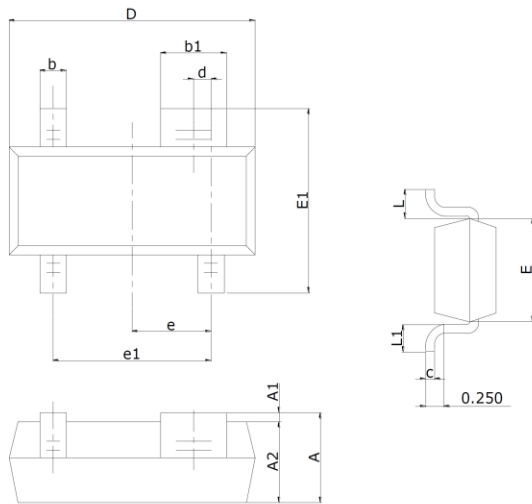
Junction Capacitance vs. Reverse Voltage

SOT-143 Package Information

Mechanical Data

Case: SOT-143

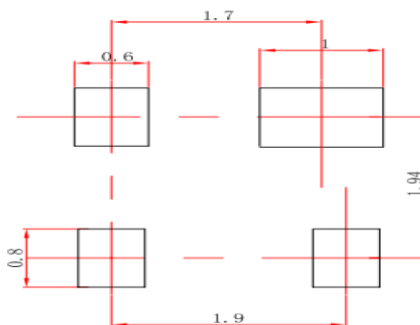
Case Material: Molded Plastic. UL Flammability



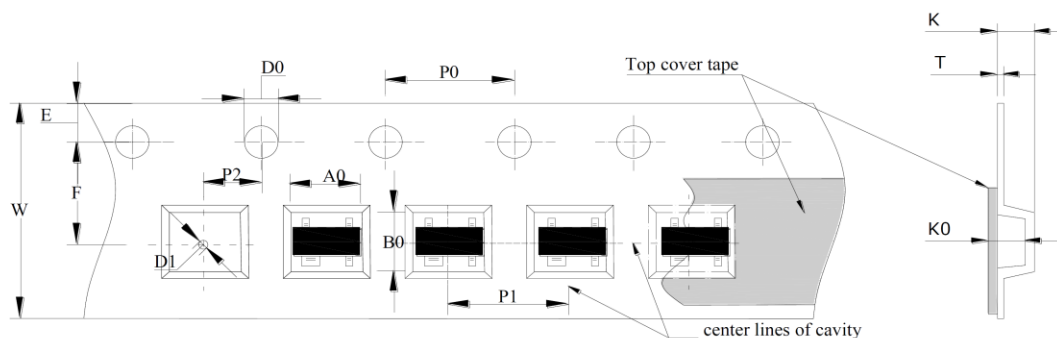
SOT-143

DIM	Millimeters		Inches	
	Min	Max	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
b1	0.75	0.90	0.030	0.035
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
d	0.20TYP		0.008TYP	
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.10
e	0.95TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.55REF		0.022REF	
L1	0.30	0.50	0.012	0.020

Recommended Pad outline



SOT-143 Reel Dim



Package	Chip Size	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOT-143	2.9×2.40×1.10	3.05×2.60×1.20	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	1.0mm	1.75mm	3.5mm	1.00mm	0.2mm	8mm	