

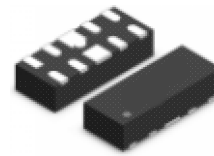
Transient Voltage Suppressors for ESD Protection

SE05NRD14GH

Features

- u Transient protection for high speed data lines to IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
IEC 61000-4-4 (EFT) 40A (5/50ns)
- u Working voltage : 5V
- u Protects two or four I/O lines
- u Ultra Low capacitance: 0.3pf (typical between I/O channel)
- u Low operating and clamping voltages
- u Solid-state silicon avalanche technology

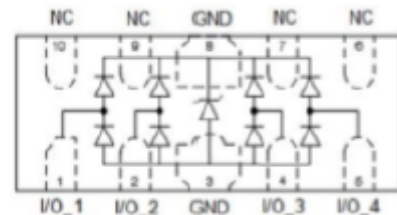
DFN2510



Applications

- u High Definition Multi-Media Interface (HDMI)
- u USB 1.1/2.0/3.0/OTG
- u IEEE 1394 Firewire Ports
- u Projection TV Monitors and Flat Panel Displays
- u Notebook Computers
- u Set Top Box

Pin Configuration



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

Symbol	Parameter	Value	Units
T_L	Lead Soldering Temperature	260 (10 sec.)	$^\circ\text{C}$
T_J	Operating Temperature	-55 to +125	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	Any I/O to Ground	--	--	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$, Any I/O to Ground	6.0	--	--	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$, Any I/O to Ground	--	--	1.0	μA
Diode Forward Voltage	V_F	$I_F = 15\text{mA}$	--	0.85	1.2	V
Clamping Voltage	V_C	$I_{PP} = 2\text{A}$, $t_p = 8/20\mu\text{s}$, any I/O pin to Ground	--	--	12.0	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between I/O pins	--	0.3	0.4	pF
		$V_R = 0\text{V}$, $f = 1\text{MHz}$, any I/O pin to Ground	--	0.6	0.8	pF

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

Fig1. Pulse Waveform

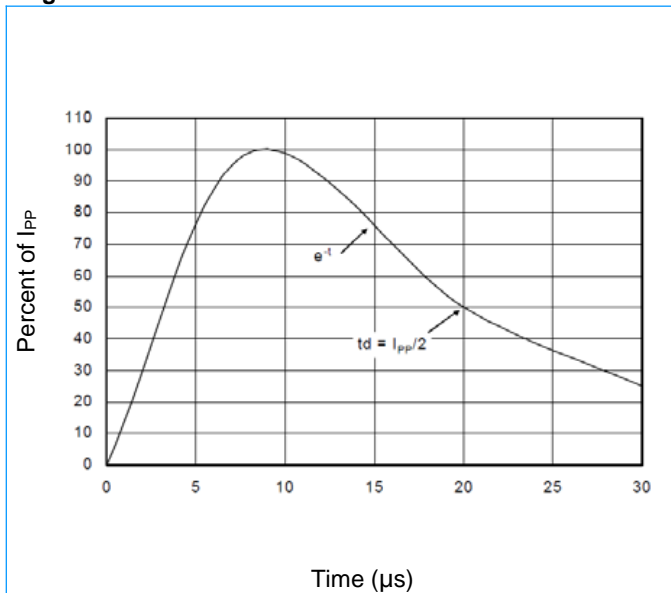
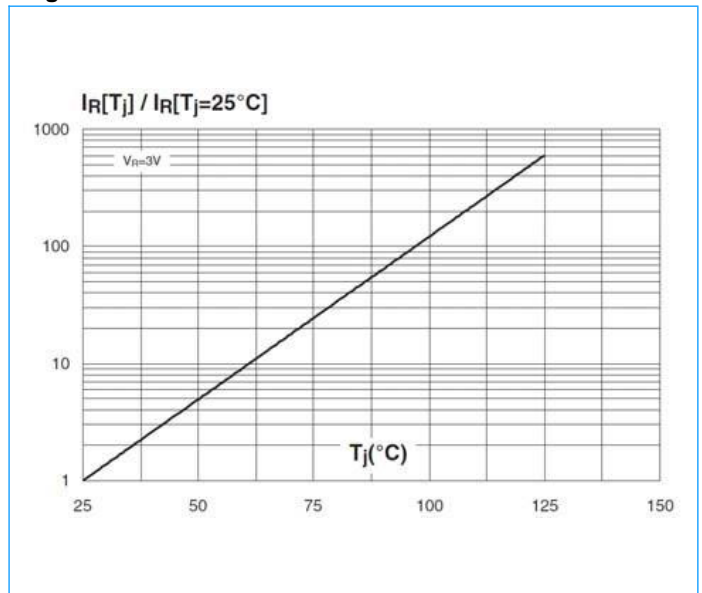


Fig2. $I_R - T_J$



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

Fig3. Non-Repetitive Peak Pulse vs. Pulse Time

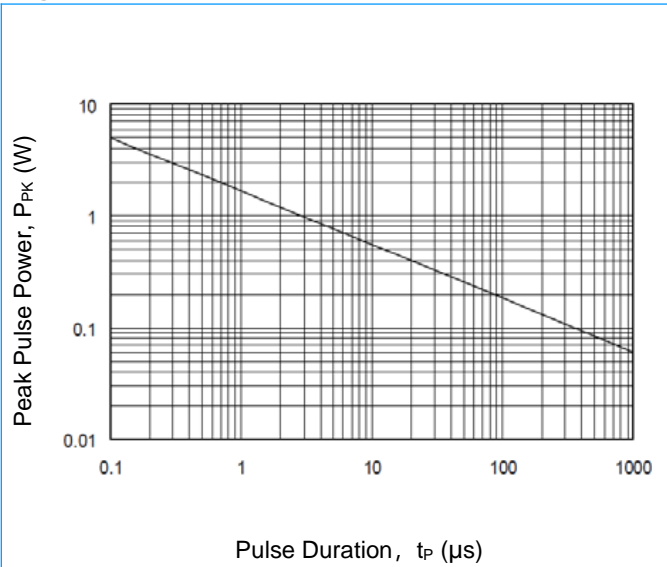
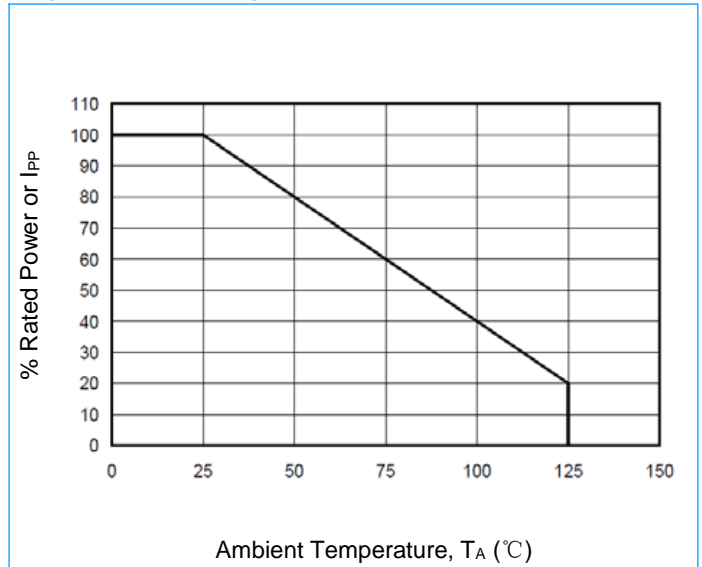
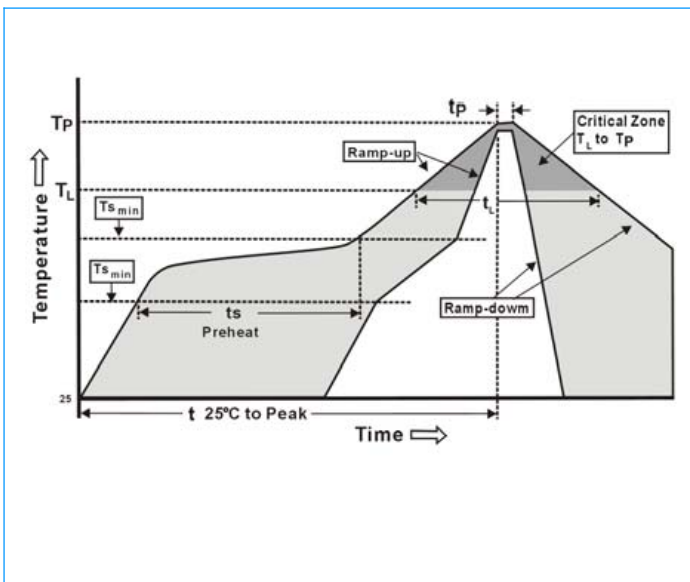


Fig1. Power Derating Curve



Soldering Parameters



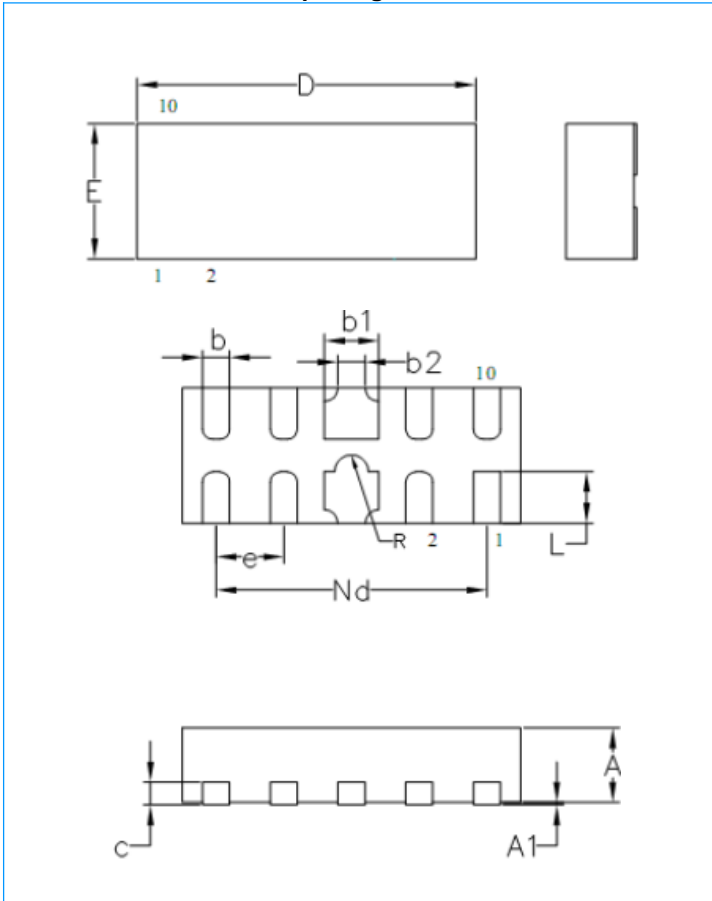
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_s max to T_p)	3°C/second max.
Preheat : Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (T_{smin} to T_{smax})	150°C 200°C 60-180 seconds
Time maintained above: Temperature(T_L) Time (T_L)	217°C 60-150 seconds
T_{smax} to T_L - Ramp-Up Rate	3°C/second max.
Peak/Classification Temperature(T_p)	250 ^{+0/-5} °C
Time within 5 °C of actual peak temperature: Time (T_p)	20-40 seconds
Ramp-down Rate	6°C/ second max.
Time 25°C to Peak Temperature	8 minutes max.
Do not exceed	260°C

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DFN2510 Package Outline

Plastic surface mounted package



Symbol	Unit: Millimeter		
	Min.	Nom.	Max.
D	2.45	2.50	2.55
E	0.95	1.00	1.05
b1	0.35	0.40	0.45
b2	0.20 REF		
b	0.15	0.20	0.25
L	0.33	0.38	0.43
Nd	2.00 BSC		
e	0.50 BSC		
R	0.10	0.125	0.15
A	0.45	0.50	0.55
c	0.15 REF		
A1	0.00	--	0.05

Package Information

Device	Package	Shipping	Reel Size
SE05NRD14GH	DFN2510	3000 PCS / Reel	7 inch