

Low Capacitance TVS Array ES0504/ES0503

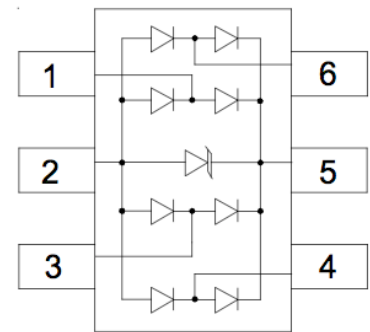
General Description

ES0504/ES0503 are surge rated diode arrays designed to protect high-speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

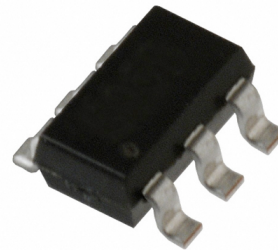
The unique design incorporates surge rated, low capacitance steering diodes and a TVS diode in a single package. During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground. The internal TVS diode prevents over-voltage on the power line, protecting any downstream components. The low capacitance array configuration allows the user to protect four high-speed data or transmission lines. The low inductance construction minimizes voltage overshoot during high current surges.

Applications

- USB 2.0
- USB OTG
- Monitors and Flat Panel Displays
- Digital Visual Interface (DVI)
- High-Definition Multimedia Interface (HDMI)
- Gigabit Ethernet
- SIM Ports
- IEEE 1394 Fire wire Ports



SOT363-6



Features

- Array of surge rated diodes with internal TVS Diode
- Small package (2.4 x 2.2mm) saves board space
- Protects up to four I/O lines & power line
- Low capacitance (<3pF) for high-speed interfaces
- No insertion loss to 2.0GHz
- Low leakage current and clamping voltage
- Low operating voltage: 5.0V/3.3V
- Solid-state silicon-avalanche technology

IEC61000-4-2(ESD) 15kV(air), 8kV(Contact)

IEC61000-4-4(EFT) 40A(5/50ns)

IEC61000-4-5(Surge)24A(8/20us),Level2(Line-Ground)& Level 2(Line- Line)

Absolute ratings (limiting value)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu s$)	PPK	120	W
Peak Pulse Current ($t_p = 8/20\mu s$)	IPP	6	A
Operating Temperature	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Electrical Characteristics

Part Numbers	VBR			IT	VRWM	IR	CJ
	Min.	Typ.	Max.				TYP
	V	V	V	mA	V	uA	PF
ES0504	6	6.6	7.2	1	5	3	0.6
ES0503	3.9	4.8	5.6	1	3.3	5	0.6

Note 1: I/O pins are pin 1, 3, 4, and 6

TYPICAL DEVICE CHARACTERISTICS

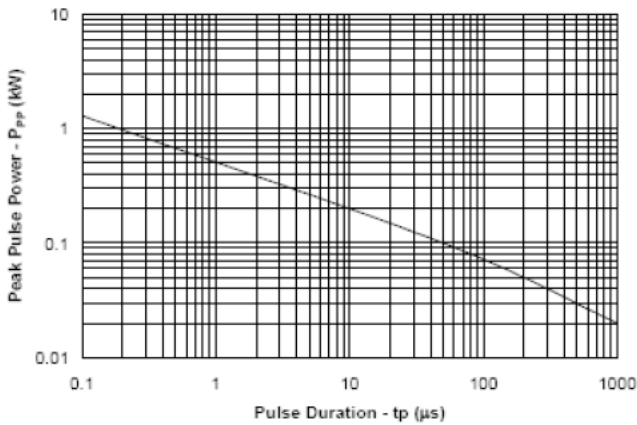


Fig1. Non-Repetitive Peak Pulse Power vs. Pulse Time

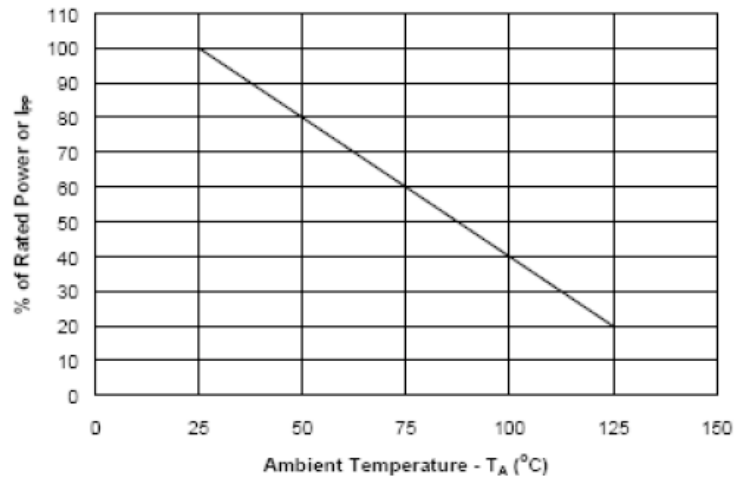


Fig2. Power Derating Curve

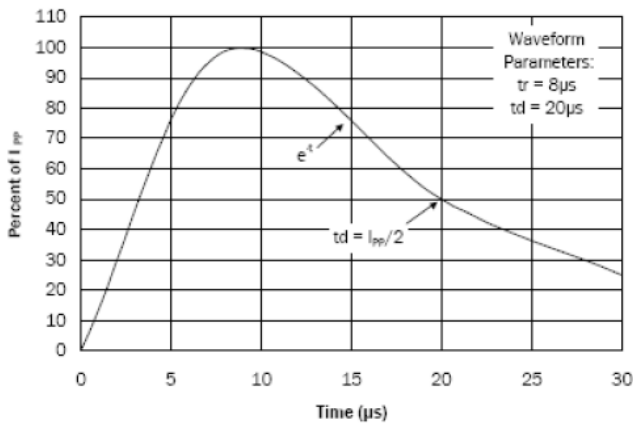


Fig3. Pulse Waveform

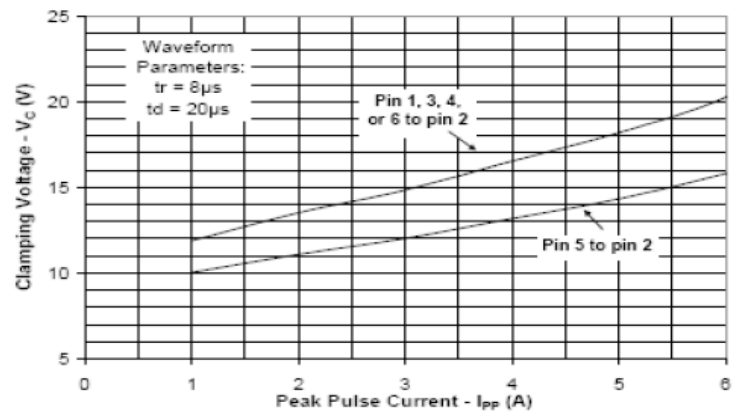


Fig4. Clamping Voltage vs. Peak Pulse Current

TYPICAL DEVICE CHARACTERISTICS

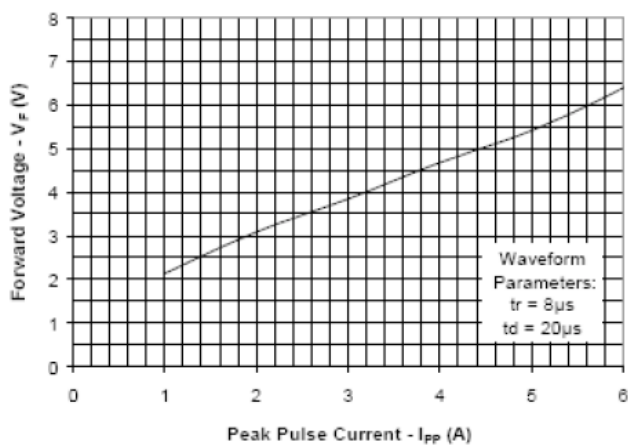


Fig5. Forward Voltage vs. peak Pulse Current

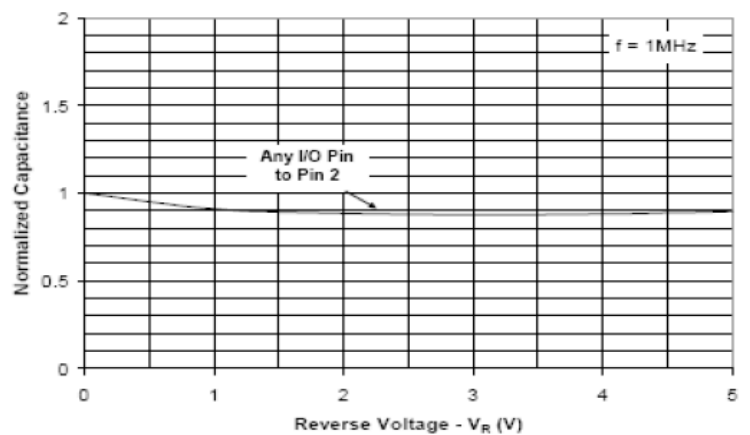
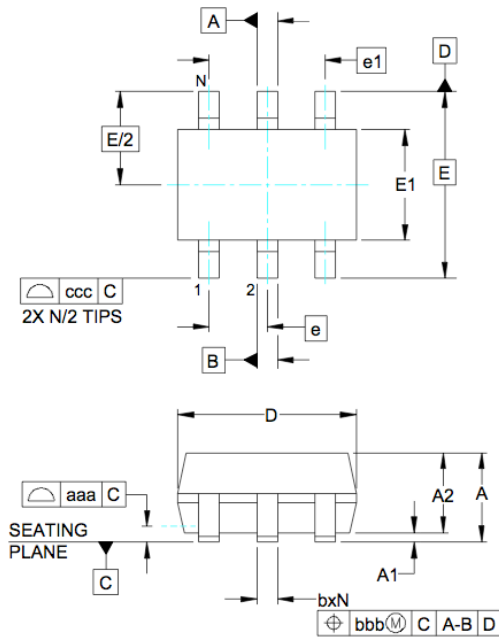


Fig6. Capacitance vs. Reverse Voltage (Normalized to 0V)

SOT-363 Mechanical Data



DIMENSIONS						
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	-	-	.043	-	-	1.10
A1	.000	-	.004	0.00	-	0.10
A2	.028	.035	.039	0.70	0.90	1.00
b	.006	-	.012	0.15	-	0.30
c	.003	-	.009	0.08	-	0.22
D	.071	.079	.087	1.80	2.00	2.20
E1	.045	.049	.053	1.15	1.25	1.35
E	.083 BSC			2.10 BSC		
e	.026 BSC			0.65 BSC		
e1	.051			1.30 BSC		
L	.010	.014	.018	0.26	0.36	0.46
L1	(.017)			(0.42)		
N	6			6		
θ1	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.004			0.10		
ccc	.012			0.30		