

JEU0524P TVS Diode array for ESD Protection

Features and benefits

- ✧ Solid-state silicon-avalanche technology
- ✧ Up to four I/O Lines of Protection
- ✧ Low operating voltage: 5V
- ✧ Ultra low capacitance: 0.3pF typical(I/O to I/O)
- ✧ Low operating and clamping voltage
- ✧ Low leakage current
- ✧ ROHS compliant

Application information

- ✧ USB3.0/3.1
- ✧ HDMI2.0
- ✧ RJ45

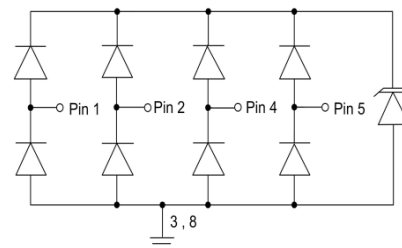
Protection solution to meet

- ✧ IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 3.5A (8/20 μs)

Pin Information and Graphic symbol



DFN2510



4-line Protection Circuit

Mechanical Characteristics

- ✧ DFN2510-10L Package
- ✧ Molding Compound Flammability Rating : UL 94V-O
- ✧ Quantity Per Reel : 3,000pcs
- ✧ Lead Finish : Lead Free
- ✧ Marking Code: 5R2P

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating junction temperature range	T_j	-55 to +125	$^\circ\text{C}$
Lead Soldering Temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
Peak pulse power dissipation on 8/20 μs waveform	P_{pp}	100	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/- 15	kV
ESD per IEC 61000-4-2 (Contact)		+/- 8	

Electrical Characteristics (TA=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_R	I/O to GND			5.0	V
Reverse Breakdown Voltage	V_{BR}	I/O to GND@IT = 1mA	6.0			V
Reverse Leakage Current	I_R	I/O to GND @ $V_R = 5V$			1.5	μA
Clamping Voltage	V_C	$I_{PP} = 1A$, $t_p = 8/20\mu s$			9	V
		$I_{PP} = 3.5A$, $t_p = 8/20\mu s$			11	V
Junction Capacitance	C_J	$V_R = 0V$, $f = 1MHz$ I/O pin to GND		0.5	0.65	pF
		$V_R = 0V$, $f = 1MHz$ Between I/O pins		0.04	0.08	pF

RATINGS AND V-I CHARACTERISTICS CURVES (TA=25 °C, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

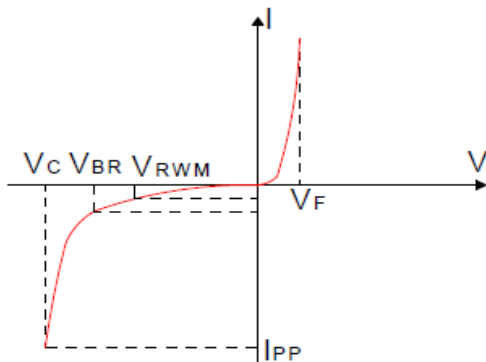


FIG.2: Pulse waveform (8/20μs)

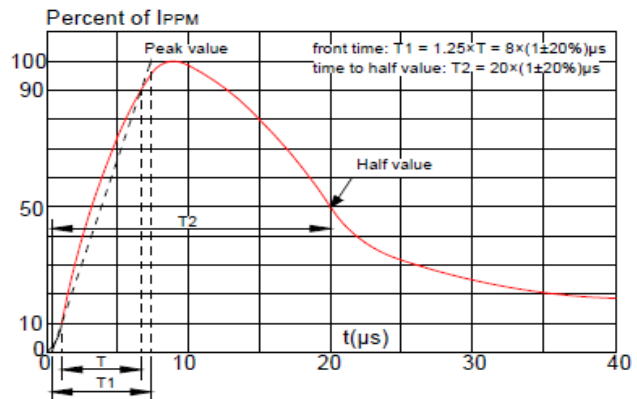


FIG.3: Pulse derating curve

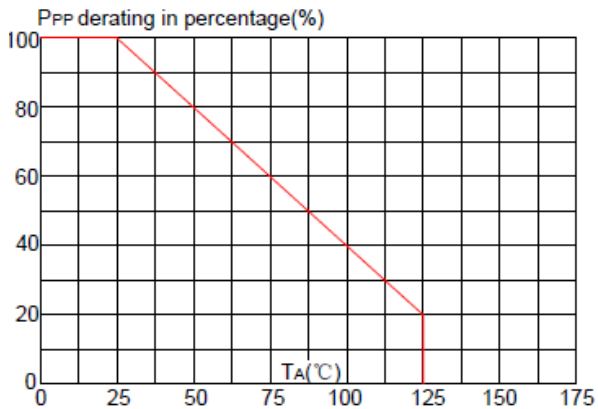
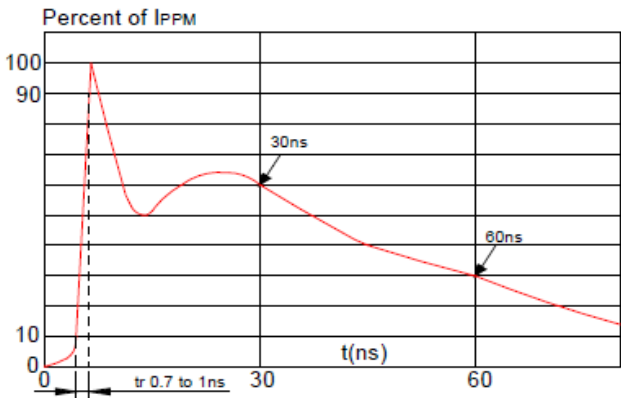
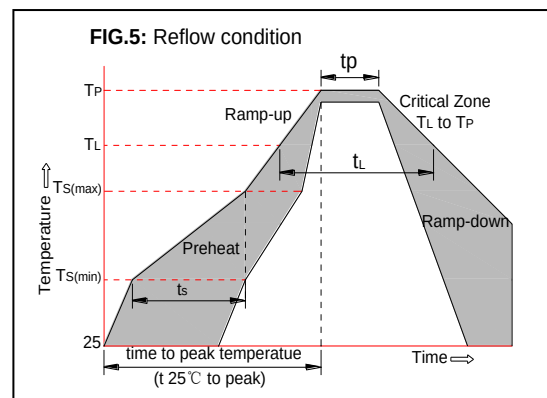


FIG.4: ESD clamping (8KV contact)



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



PACKAGE MECHANICAL DATA

