

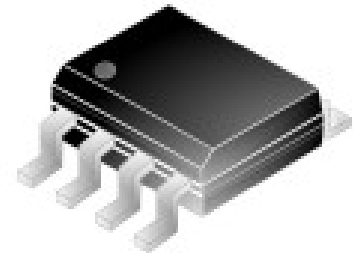


JEU3.3-4RDA TVS Diode Array

Rev.1.6

FEATURES

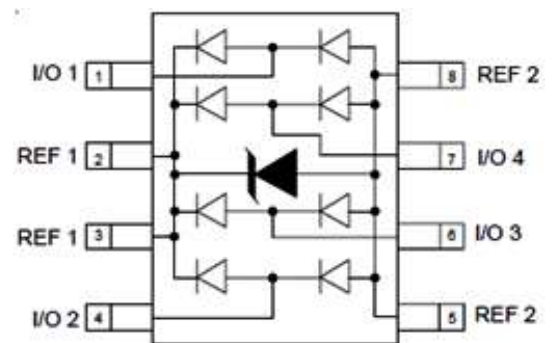
- ◇ 500 Watts peak pulse power per line ($t_p=8/20\mu s$)
- ◇ Protects four I/O lines and power supply line
- ◇ Low capacitance ($<15pF$) for high-speed interfaces
- ◇ Low clamping voltage
- ◇ Low operating voltage
- ◇ Solid-state technology
- ◇ RoHS compliant



SOP-8

MAIN APPLICATIONS

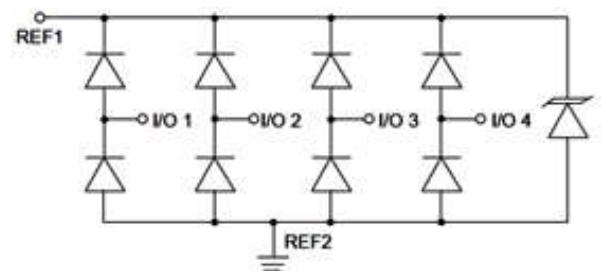
- ◇ USB power & data line protection
- ◇ HDSL, IDSL secondary IC side protection
- ◇ Video line protection
- ◇ Microcontroller input protection
- ◇ I²C bus protection
- ◇ Base stations



Pin configuration

PROTECTION SOLUTION TO MEET

- ◇ IEC61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lightning) 25A (8/20 μs)



Circuit diagram

MECHANICAL CHARACTERISTICS

- ◇ JEDEC SOP-8 package
- ◇ Molding compound flammability rating : UL 94V-0
- ◇ Quantity per reel : 4,000pcs
- ◇ Lead finish : lead free
- ◇ Marking code : 3.3-4RDAXX

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 8/20 μs waveform	P_{PP}	500	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 15 +/- 8	kV
Lead soldering temperature	T_L	260 (10 sec.)	$^{\circ}\text{C}$
Operating junction temperature range	T_J	-55 to +125	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				3.3	V
Punch-through voltage	V_{PT}	$I_{PT}=2\mu\text{A}$	3.5			V
Snap-back voltage	V_{SB}	$I_{SB}=50\text{mA}$	2.8			V
Reverse leakage current	I_R	$V_{RWM}=3.3\text{V}$			1	μA
Clamping voltage	V_C	$I_{PP}=1\text{A}, t_P=8/20\mu\text{s}$		7	8	V
		$I_{PP}=10\text{A}, t_P=8/20\mu\text{s}$		10	12	V
		$I_{PP}=25\text{A}, t_P=8/20\mu\text{s}$		15	20	V
Junction capacitance	C_J	Between I/O pins and GND $V_R=0\text{V}, f=1\text{MHz}$		8	15	pF
		Between I/O pins $V_R=0\text{V}, f=1\text{MHz}$		4		pF

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

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

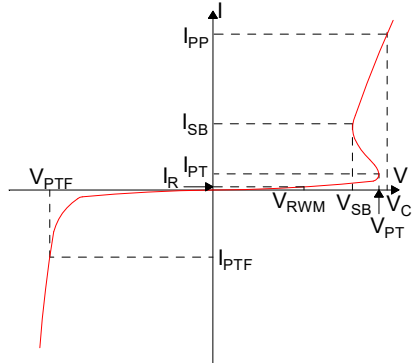


FIG.2: Pulse waveform (8/20μs)

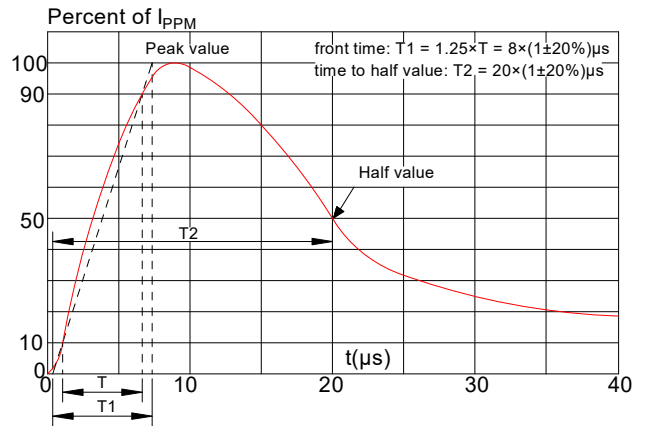


FIG.3: Pulse derating curve

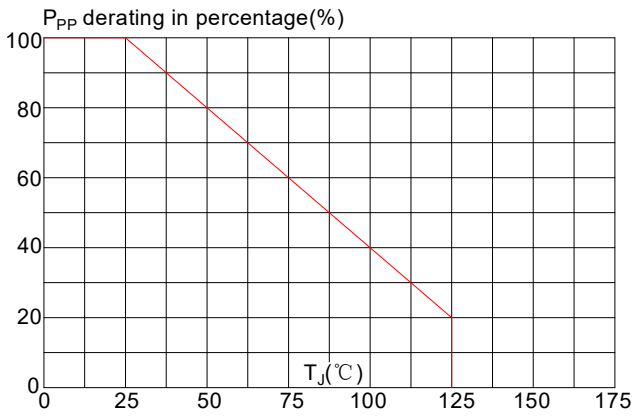
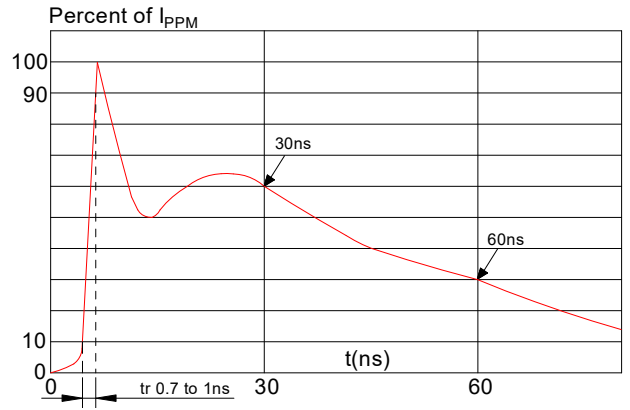
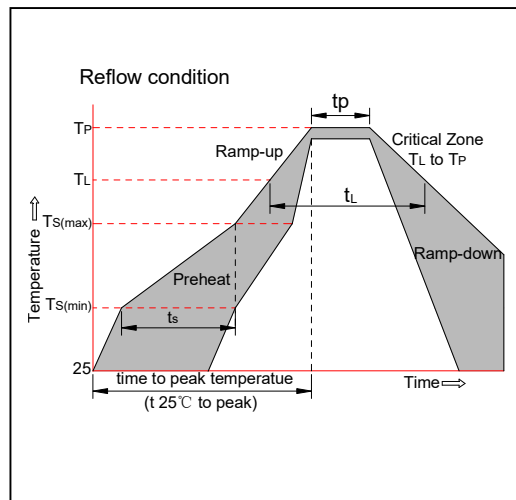


FIG.4: ESD clamping (8kV contact)

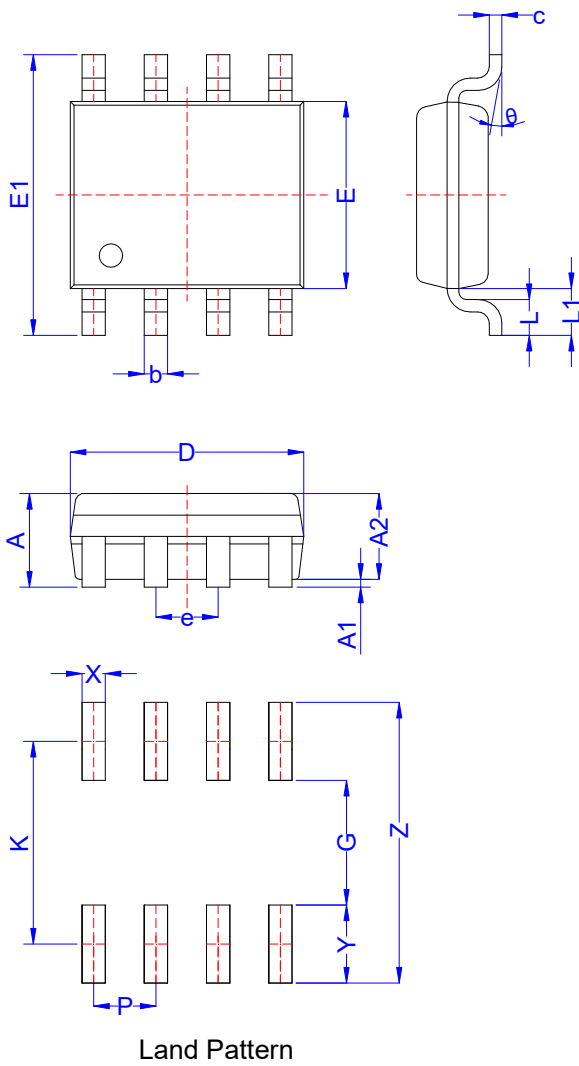


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
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 (Liquidus 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)(Liquidus)	+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)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C

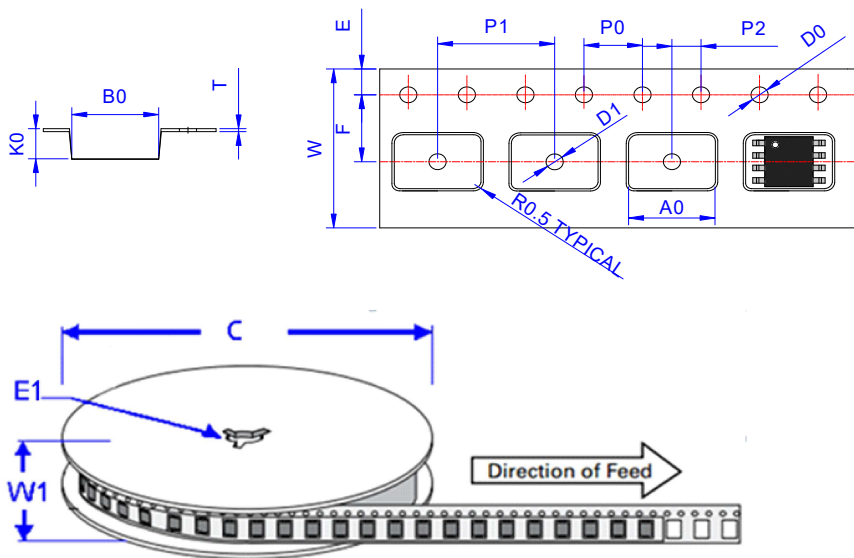


PACKAGE MECHANICAL DATA



Symbol	Millimeter			Inches		
	Min	Typ	Max	Min	Typ	Max
A	1.35	1.55	1.70	0.053	0.061	0.067
A1	0.04	0.11	0.18	0.002	0.004	0.007
A2	1.30	1.40	1.55	0.051	0.055	0.061
b	0.31	0.41	0.51	0.012	0.016	0.020
c	0.17	0.21	0.25	0.007	0.008	0.010
D	4.65	4.90	5.10	0.183	0.193	0.201
E	3.70	3.90	4.10	0.146	0.154	0.161
E1	5.80	6.00	6.20	0.228	0.236	0.244
e	1.14	1.27	1.40	0.045	0.050	0.055
L	0.40	0.50	0.77	0.016	0.020	0.030
L1	0.825	1.025	1.225	0.032	0.040	0.048
θ	0°	4°	8°	0°	4°	8°
G	3.00			0.118		
K	5.20			0.205		
P	1.27			0.050		
X	0.60			0.024		
Y	2.20			0.087		
Z	7.40			0.291		

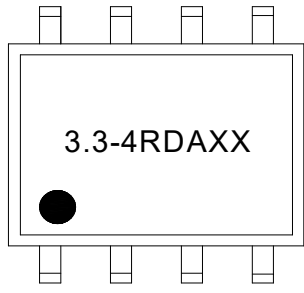
TAPE AND REEL SPECIFICATION-SOP-8



Symbol	Millimeters	Inches
	Typ.	Typ.
A0	6.40	0.252
B0	5.30	0.209
C	330	13.0
D0	1.50	0.059
D1	1.50	0.059
E1	13.30	0.524
E	1.75	0.069
F	5.50	0.217
K0	2.10	0.083
P0	4.00	0.157
P1	8.00	0.315
P2	2.00	0.079
T	0.24	0.009
W	12.00	0.472
W1	15.70	0.618

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
JEU3.3-4RDA	SOP-8	4,000	13 inch reel pack

MARKING CODE

Part Number	Marking Code
JEU3.3-4RDA	 <p>3.3-4RDAXX</p> <p>3.3-4RDA: Device code XX: Date code</p>


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