



### FEATURES

- ◇ 4500 Watts peak pulse power ( $t_P=8/20\mu s$ )
- ◇ Low leakage current
- ◇ Low clamping voltage
- ◇ Solid-state silicon-avalanche technology
- ◇ RoHS compliant

### MAIN APPLICATIONS

- ◇ Power lines
- ◇ Personal digital assistants (PDA's)
- ◇ Microprocessors based equipment
- ◇ Notebooks, desktops, and servers
- ◇ Cell phone handsets and accessories
- ◇ Portable electronics
- ◇ Peripherals

### PROTECTION SOLUTION TO MEET

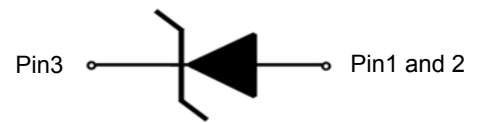
- ◇ IEC61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lightning) 180A (8/20 $\mu s$ )

### MECHANICAL CHARACTERISTICS

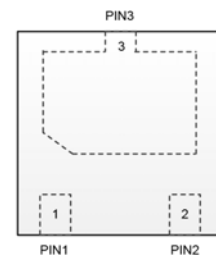
- ◇ DFN2x2-3L package
- ◇ Molding compound flammability rating: UL 94V-0
- ◇ Quantity per reel: 3,000pcs
- ◇ Lead finish: lead free
- ◇ Marking code: T12



DFN2x2-3L



Circuit Diagram



Pin Configuration

**ABSOLUTE MAXIMUM RATINGS** (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

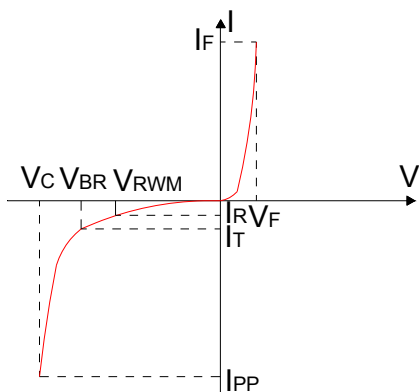
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20μs waveform	P <sub>PP</sub>	4500	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	+/- 30 +/- 30	kV
Lead soldering temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating junction temperature range	T <sub>J</sub>	-55 to +125	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub>=25°C)

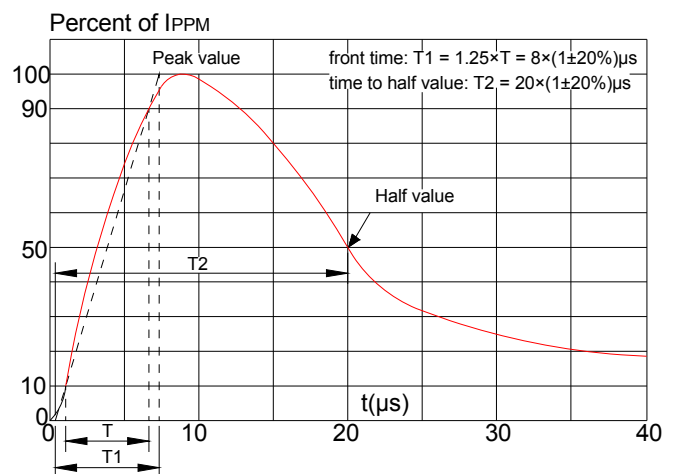
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V <sub>RWM</sub>				12	V
Reverse breakdown voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	13	14.5	16	V
Reverse leakage current	I <sub>R</sub>	V <sub>RWM</sub> =12V			1	μA
Clamping voltage	V <sub>C</sub>	I <sub>PP</sub> =50A, t <sub>P</sub> =8/20μs			22	V
		I <sub>PP</sub> =100A, t <sub>P</sub> =8/20μs			25	V
		I <sub>PP</sub> =180A, t <sub>P</sub> =8/20μs			32	V
Junction capacitance	C <sub>J</sub>	V <sub>RWM</sub> =0V, f=1MHz	900	950	1200	pF

**RATINGS AND V-I CHARACTERISTICS CURVES** (T<sub>A</sub>=25°C, unless otherwise noted)

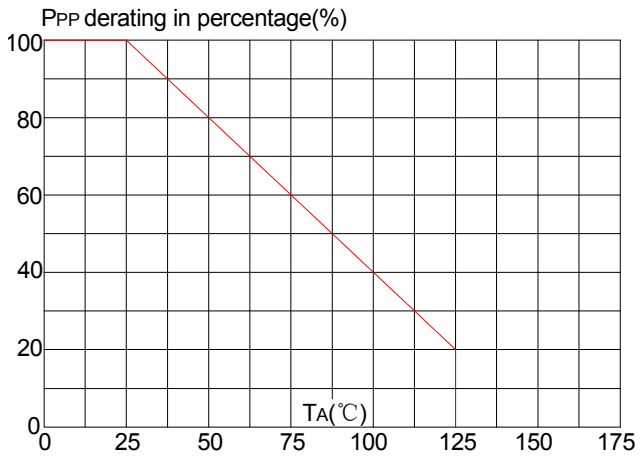
**FIG.1:V- I curve characteristics (Uni-directional)**



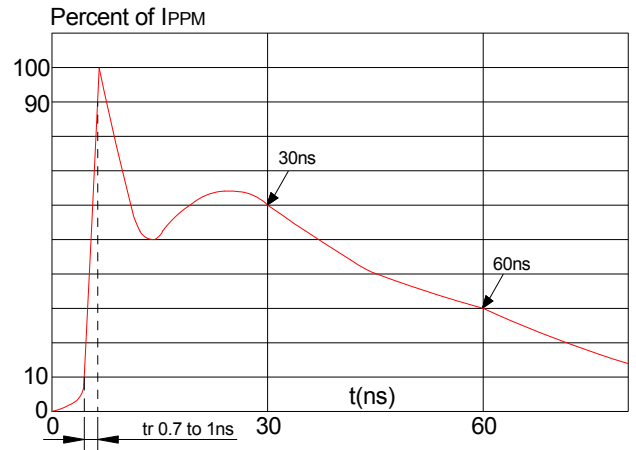
**FIG.2: Pulse waveform (8/20μs)**



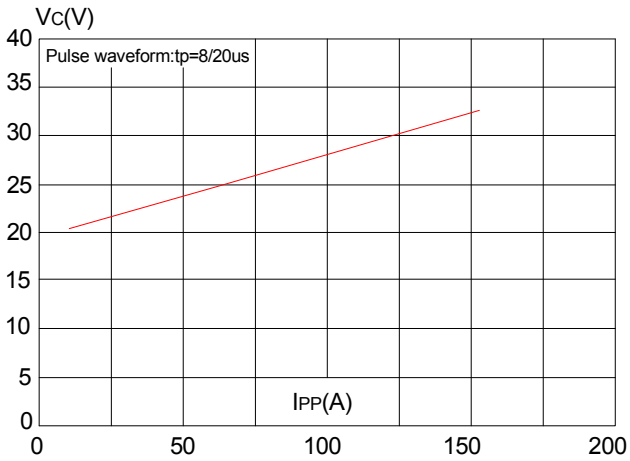
**FIG.3: Pulse derating curve**



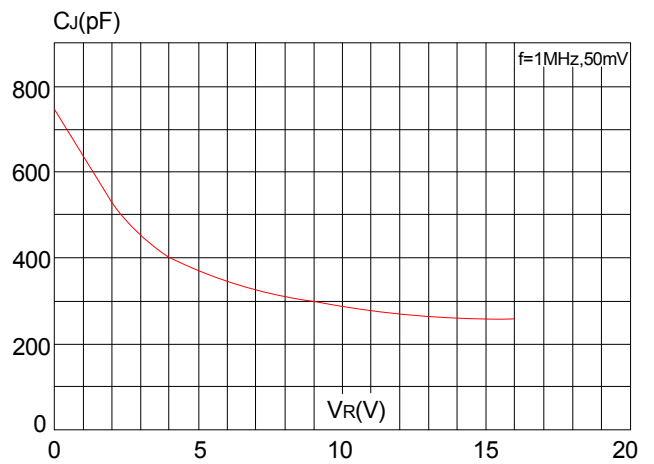
**FIG.4: ESD clamping(30kV contact)**



**FIG.5:Clamping voltage vs.peak pulse current**

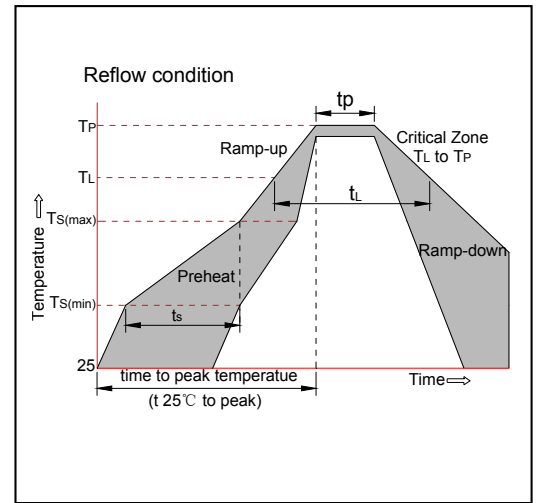


**FIG.6:Capacitance vs.reverse voltage**

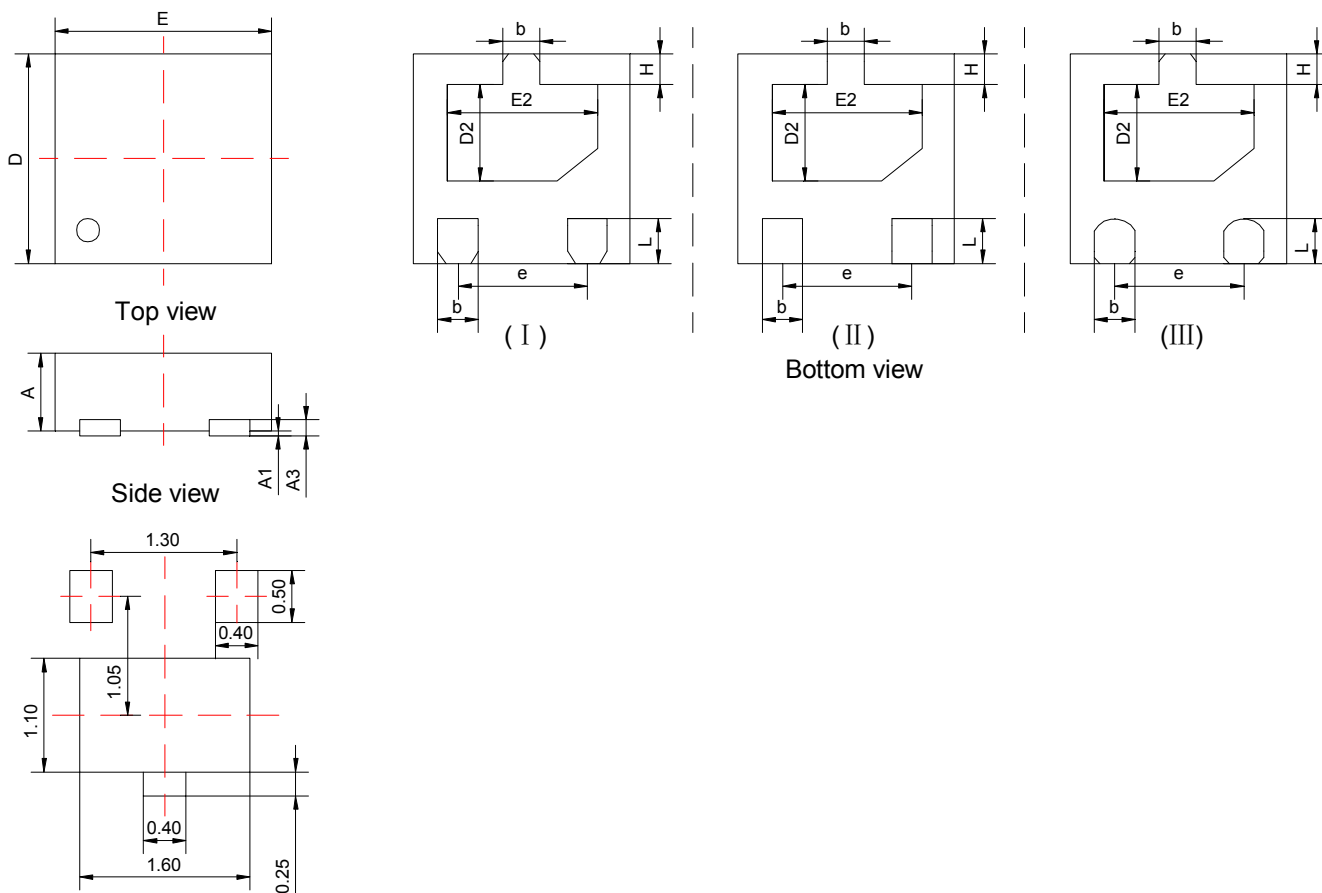


**SOLDERING PARAMETERS**

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



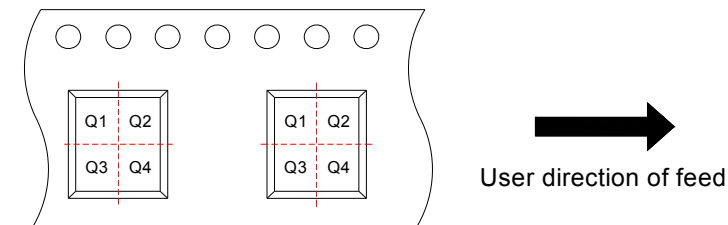
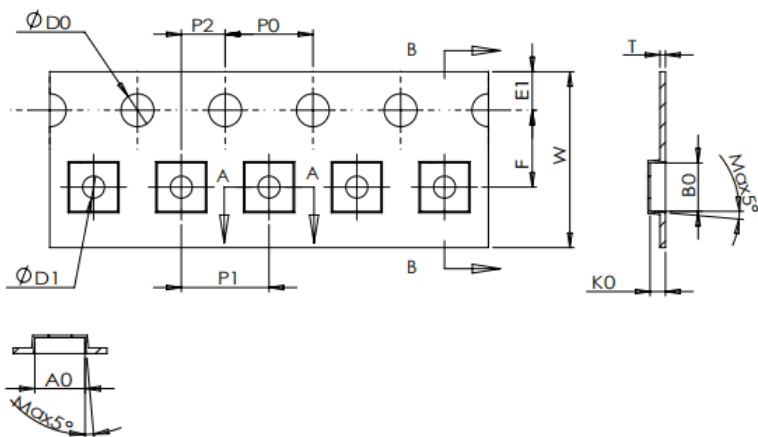
PACKAGE MECHANICAL DATA



Recommended soldering footprint(mm)

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.45	0.50	0.60	0.018	0.020	0.024
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	0.15REF			0.006REF		
b	0.25	0.30	0.35	0.010	0.012	0.014
D	1.90	2.00	2.10	0.075	0.079	0.083
E	1.90	2.00	2.10	0.075	0.079	0.083
D2	0.85	1.05	1.15	0.033	0.041	0.045
E2	1.40	1.50	1.60	0.055	0.059	0.063
e	1.30BSC			0.051BSC		
H	0.20	0.25	0.30	0.008	0.010	0.012
L	0.35	0.40	0.45	0.014	0.016	0.018

**TAPE AND REEL INFORMATION-DFN2x2-3L**



Pin 1 quadrant: Q3

Symbol	Dimensions	
	Millimeters	Inches
	Typ.	Typ.
W	8.00	0.315
P1	4.00	0.157
E1	1.75	0.069
F	3.50	0.138
D0	1.55	0.061
D1	1.00	0.039
P0	4.00	0.157
P1	4.00	0.157
P2	2.00	0.079
A0	2.20	0.087
B0	2.20	0.087
K0	0.70	0.028
T	0.23	0.009

**ORDERING INFORMATION**

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
JEU12N3	DFN2x2-3L	3,000	7 Inch

**MARKING CODE**

Part Number	Marking Code
JEU12N3	<div style="border: 1px solid black; padding: 10px; display: inline-block;"> <p style="text-align: center;">T12 ● 003</p> </div>

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