

## TQEMN12212V

Low-Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

### ● Description

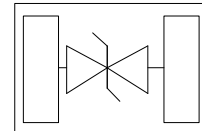
The TQEMN12212V is designed with TECH CHIP Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

### ● Feature

- 100W peak pulse power (TP = 8/20μs)
- DFN1006-2L Package
- Working voltage: 12V
- Low clamping voltage
- Low capacitance
- RoHS compliant transient protection for high speed data
- IEC61000-4-2(ESD)±25kV(air),±25kV(contact)

### ● PIN configuration



DFN1006-2L

### ● Applications

- DVI & HDMI Port Protection
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Server
- USB 1.1/2.0/3.0/3.1/OTG

### ● Mechanical data

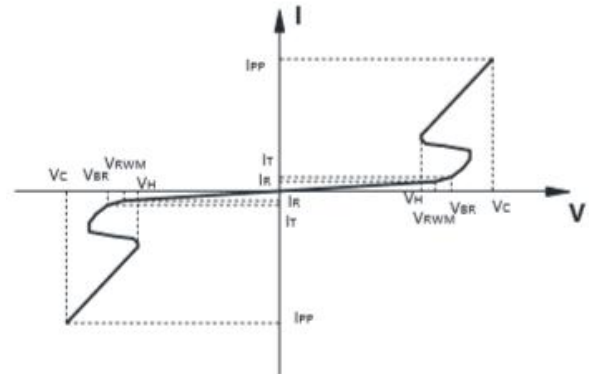
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um

## Ordering Information

Device	Package	Marking	Qty per Reel	Reel Size
TQEMN12212V	DFN1006-2L	T2	10000	7 Inch

## ● Electronic Parameter

Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$P_{PP}$	Peak Pulse Power
$C$	Junction Capacitance



## ● Absolute maximum rating @TA=25°C

Symbol	Parameter	Value	Units
$P_{PP}$	Peak Pulse Power (8/20μs)	100	W
$T_{STG}$	Storage Temperature	-55/+150	°C
$T_J$	Operating Temperature	-55/+150	°C

## ● Electrical Characteristics @TA=25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$	Any I/O to Ground		12		V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$ Any I/O to Ground	12.7			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$ , $T = 25^\circ\text{C}$			0.1	μA
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_P = 8/20\mu\text{s}$		12.7		V
Clamping Voltage	$V_C$	$I_{PP} = 5\text{A}$ , $t_P = 8/20\mu\text{s}$		14		V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to Ground		8		pF

## ● Typical Performance Characteristics

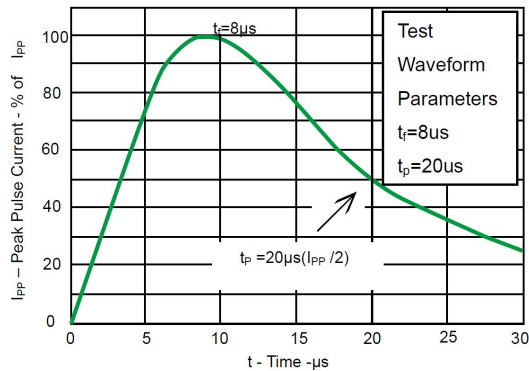


Fig 1. Pulse Waveform

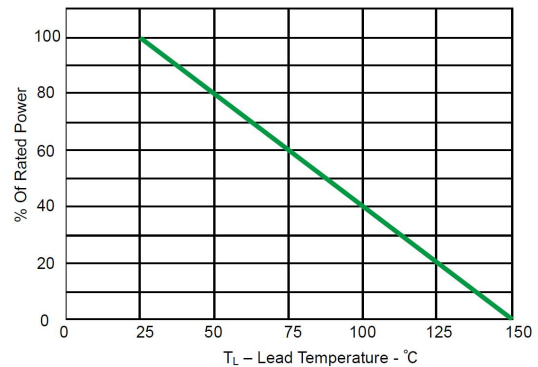
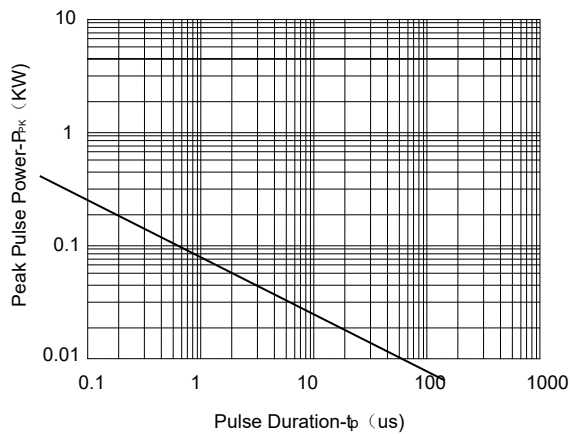


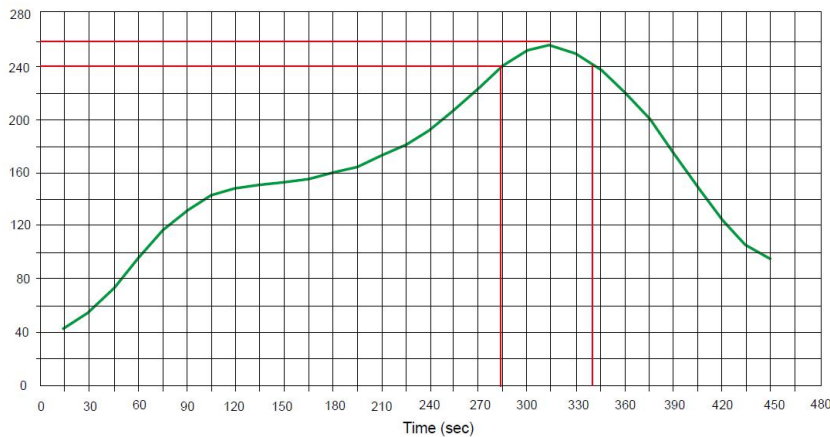
Fig 2. Power Derating Curve



Non-Repetitive Peak Pulse Power vs. Pulse Time

## ● Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

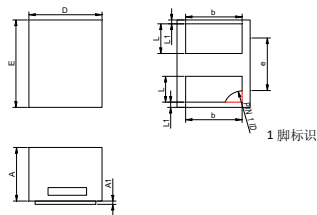


## ● Package Information

### Mechanical Data

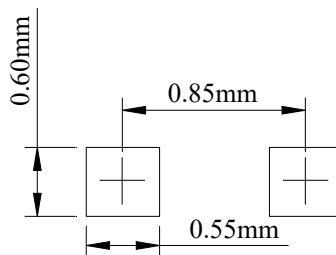
Case:DFN1006-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.30	0.50
A1	0.00	0.05
D	0.55	0.65
E	0.95	1.05
b	0.25	0.60
e	0.65TYP	
L	0.15	0.35
L1	0.05REF	

### Recommended Pad outline



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