Etek Microelectronics

E12DMSB

Transient Voltage Suppressor

Features

- Small Body Outline Dimensions:
- Protects one I/O or power line
- Working Voltage: 12V
- Low Leakage Current

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 4A (8/20μs)**

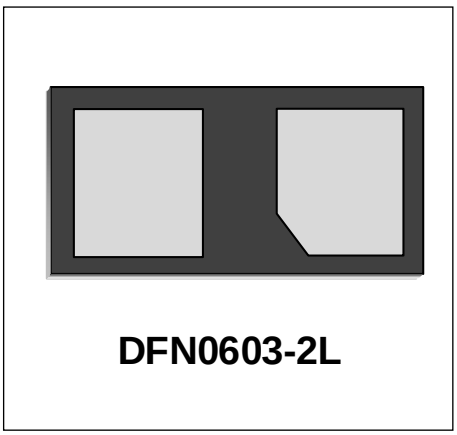
Mechanical Characteristics

- DFN0603-2L package
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant
- MSL1

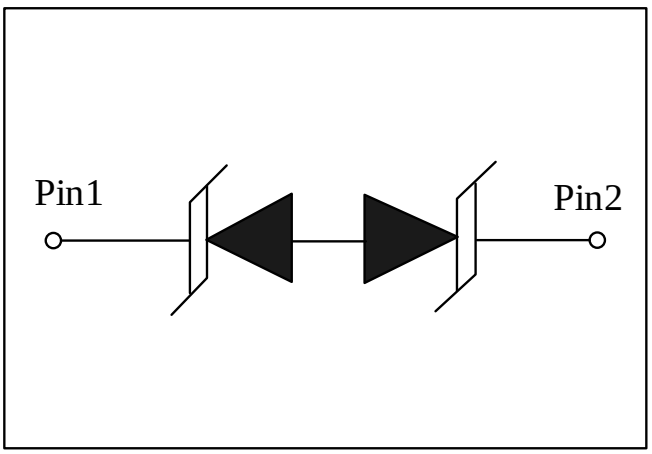
Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- MP3 Players

Schematic & PIN Configuration



DFN0603-2L

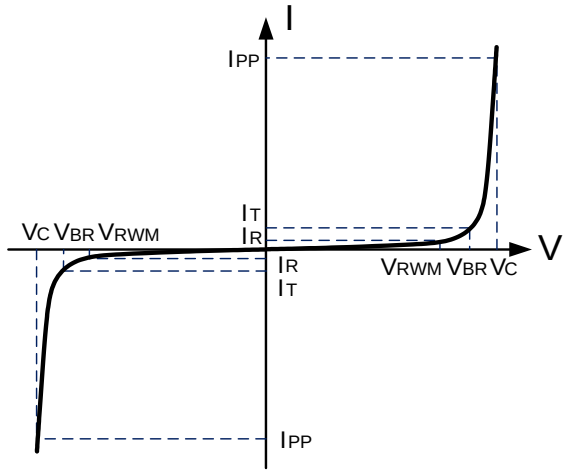


Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_p = 8/20μs)	P_{PP}	80	Watts
Peak Pulse Current (t_p = 8/20μs)	I_{PP}	4	A
Operating Temperature	T_J	-55 to + 125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Stand-Off Voltage
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



Electrical Characteristics

E12DMSB						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3			V
Reverse Leakage Current	I_R	V_{RWM}=12V, T=25℃			500	nA
Clamping Voltage	V_C	I_{PP}=4A, t_p=8/20μs		16.5	20	V
Dynamic Resistance[1,2]	R_{DYN}	TLP=0.2/100ns		0.36		Ω
ESD Clamping Voltage[1]	V_C	IPP = 4A, tp = 0.2/100ns (TLP)		13.7		V
ESD Clamping Voltage[1]	V_C	IPP = 16A, tp = 0.2/100ns (TLP)		18		V
Junction Capacitance	C_j	VR =0V, f =1MHz		7	12	pF

Notes：1、TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.
2、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

Typical Characteristics

Figure 1: Peak Pulse Power Vs Pulse Time

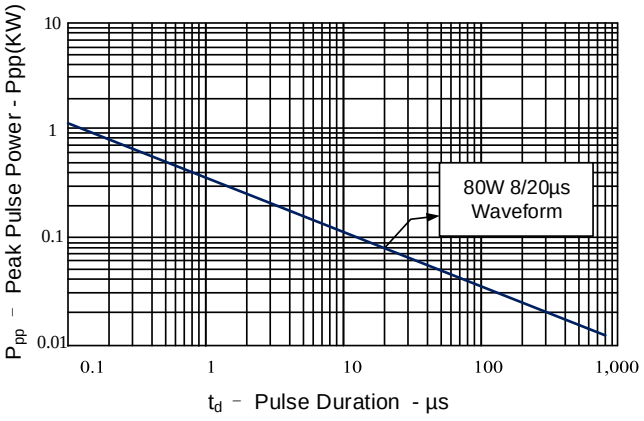


Figure 2: Power Derating Curve

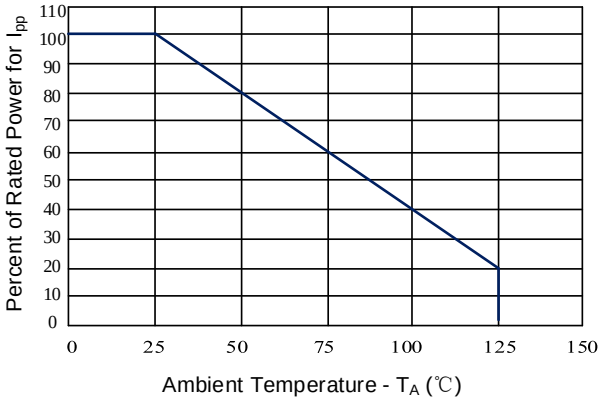


Figure 3: Clamping Voltage vs. Peak Pulse Current

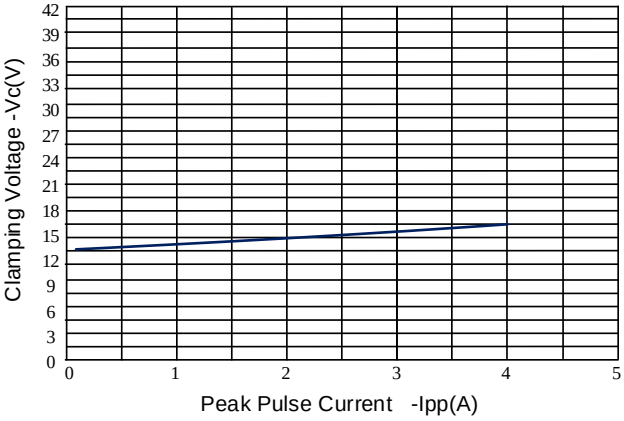


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

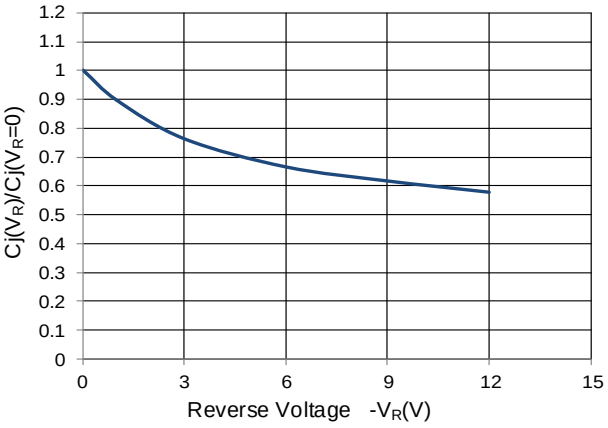


Figure 5: TLP Positive I-V Curve

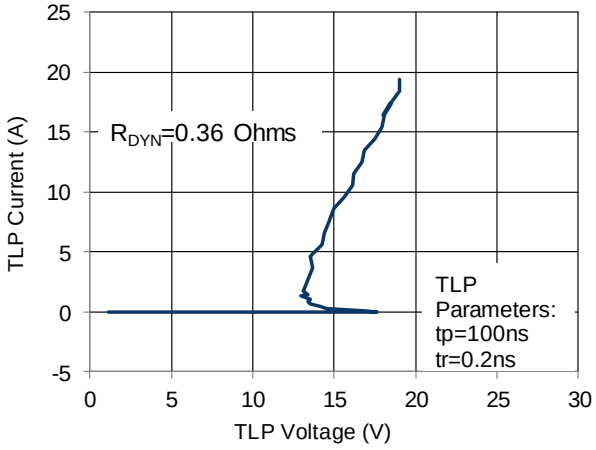
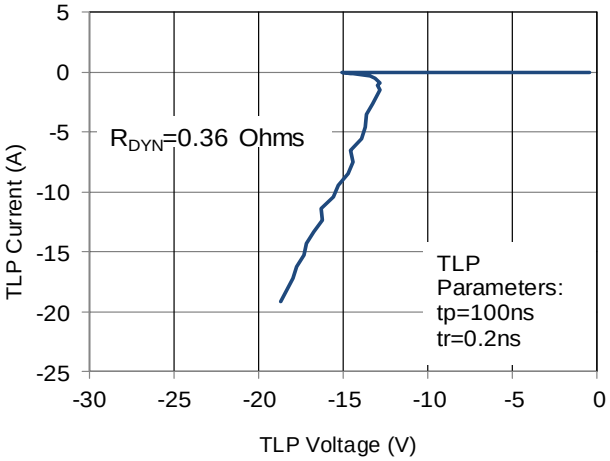
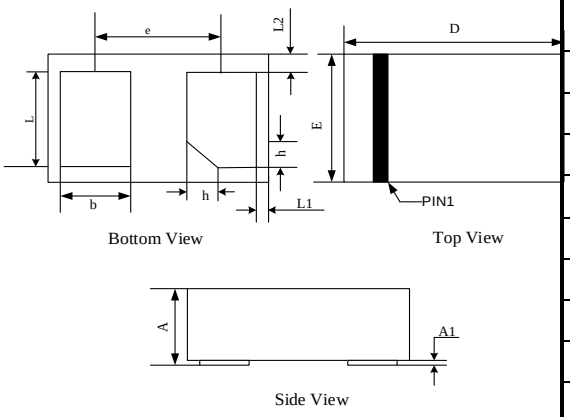


Figure 6: TLP Negative I-V Curve



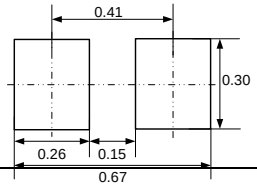
Outline Drawing –DFN0603-2L

PACKAGE OUTLINE



SYMBOL	MILIMETER			Dimension In Inches		
	NOM	MIN	MAX	NOM	MIN	MAX
A	--	0.280	0.320	--	0.011	0.013
A1	--	--	0.050	--	--	0.002
D	0.610	0.570	0.630	0.024	0.022	0.025
E	0.310	0.270	0.330	0.012	0.011	0.013
b	0.180	0.155	0.205	0.007	0.006	0.008
L	0.240	0.200	0.260	0.009	0.008	0.010
h	--	0.050	0.100	--	0.002	0.004
L1	0.035REF			0.001REF		
L2	0.035REF			0.001REF		
e	0.360BSC			0.014BSC		

Land Pattern



Marking Codes

Part Number	Marking Code
E12DMSB	1 F≧ 2

Package Information

Qty：15k/Reel

Revision History

No.	Version	Date	Revision Item	Request	Function and characteristic checking	Package dimension checking	Typos checking
1	1.0	2019-10-18	Released Version	Qi Shu Kun	Qi Shu Kun	Liu Jia Ying	Liu Jia Ying
2	1.1	2020-03-17	Add MSL level	Qi Shu Kun	Qi Shu Kun	Liu Jia Ying	Liu Jia Ying