



Transient Voltage Suppressor

Features

- 5760 Watts Peak Power ($t_p = 8/20\mu s$)
- Working Voltage: 18V
- Excellent Clamping Capability
- Low Leakage Current
- Low profile package

IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 160A (8/20 μs)

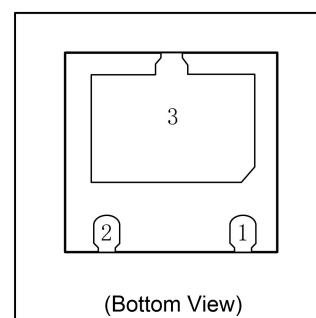
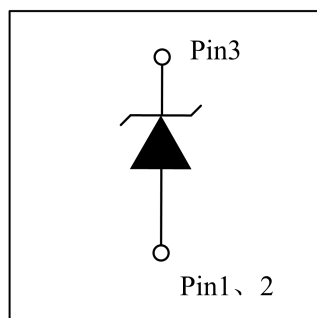
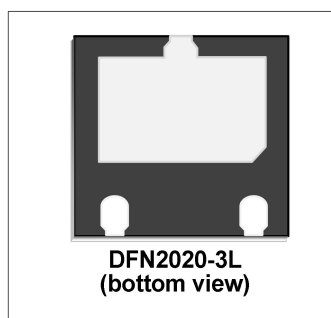
Mechanical Characteristics

- DFN2020-3L package
- Marking : Making Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computer & Consumer Electronics
- Industrial Electronics
- Microcontroller Input Protection

PIN Configuration

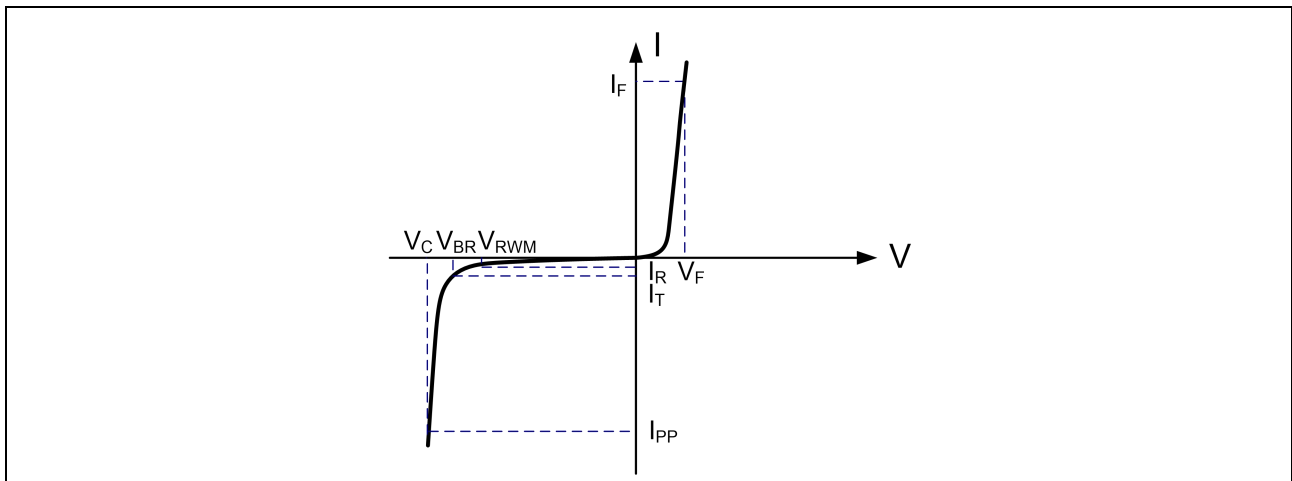


Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PP}	5760	Watts
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	160	A
Operating Temperature	T_J	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

Electrical Parameters (T=25°C)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
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
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				18	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	20		25	V
Reverse Leakage Current	I_R	$V_{RWM}=18V, T=25^{\circ}C$			200	nA
Forward Voltage	V_F	$I_F=10mA$	0.6		1	V
Clamping Voltage ¹	V_C	$I_{PP}=1A, t_p=8/20\mu s$		21.5	25	V
Clamping Voltage ¹	V_C	$I_{PP}=150A, t_p=8/20\mu s$		31	33	V
Clamping Voltage ¹	V_C	$I_{PP}=160A, t_p=8/20\mu s$		33	36	V
Dynamic Resistance ^{2,3}	R_{DYN}	$TLP=0.2/100ns$		0.02		Ω
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4A$ $t_p = 0.2/100ns$		22.4		V
ESD Clamping Voltage ¹	V_C	$I_{PP} = 16A$ $t_p = 0.2/100ns$		22.6		V
Junction Capacitance ¹	C_j	$V_R = 0V, f = 1MHz$		970	1500	pF

Notes : 1、 Measured from pin 3 to pin 1 & pin 2.

2、 TLP Setting : $t_p=100ns, t_r=0.2ns, I_{TLP}$ and V_{TLP} sample window: $t_1=70ns$ to $t_2=90ns$.

3、 Dynamic resistance calculated from $I_{PP}=4A$ to $I_{PP}=16A$ using "Best Fit".

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

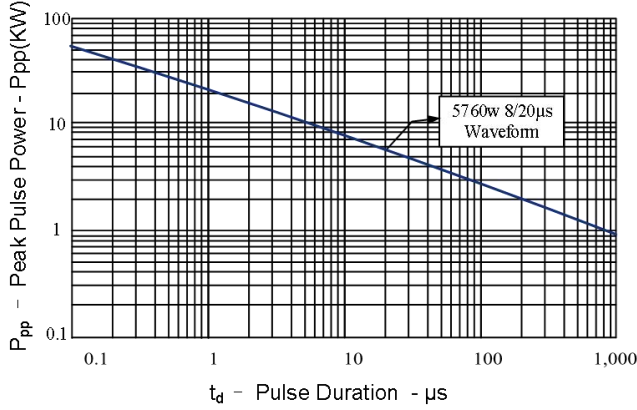


Figure 2: Power Derating Curve

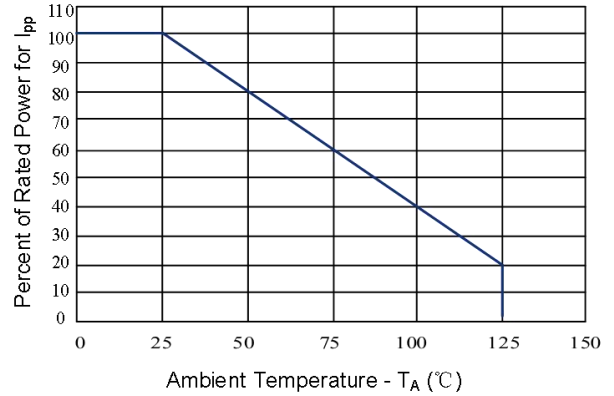


Figure 3: Clamping Voltage vs. Peak Pulse Current

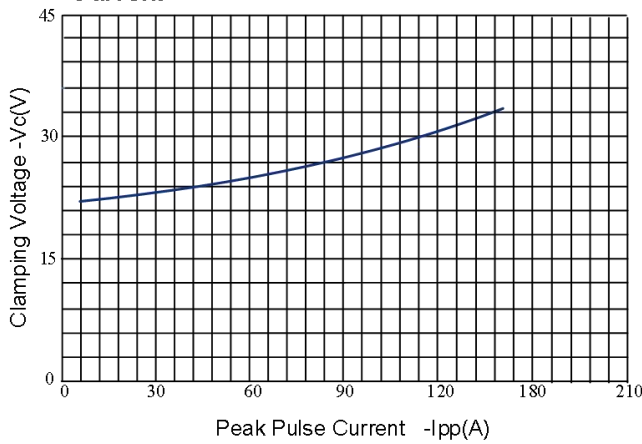


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

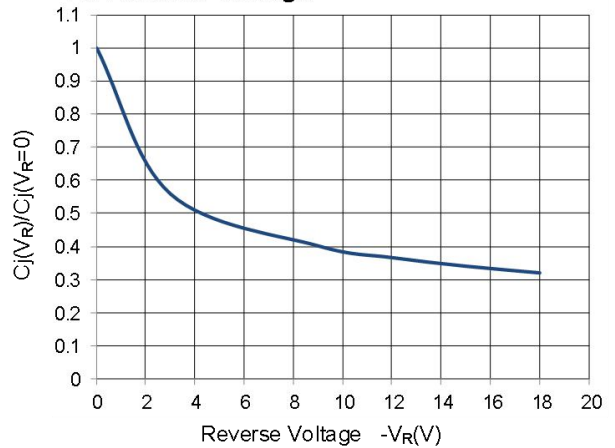


Figure 5: 8/20μs Pulse Waveform

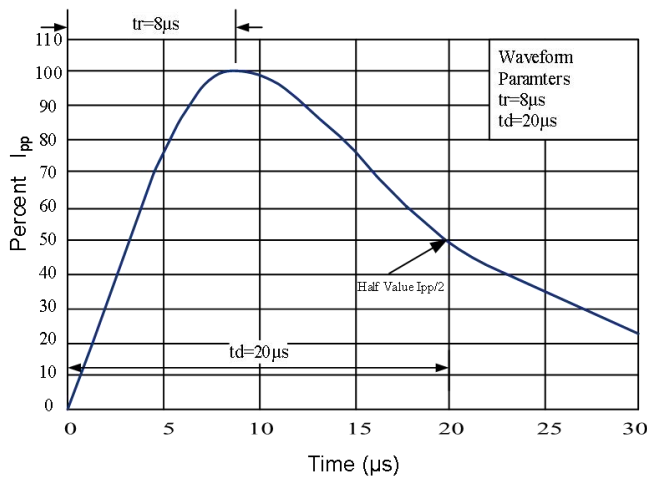
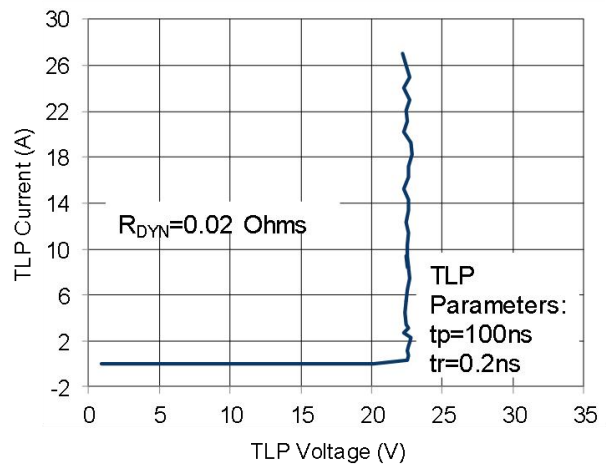


Figure 6: TLP I-V Curve



Outline Drawing –DFN2020-3L

PACKAGE OUTLINE

TOP VIEW

BOTTOM VIEW

SIDE VIEW

SYMBOL	MILIMETER		
	MIN	NOM	MAX
A	0.45	0.55	0.60
A1	0.00	0.02	0.05
b	0.25	0.30	0.35
b1	0.20REF		
c	0.152REF		
D	1.90	2.00	2.10
D2	1.40	1.50	1.60
e	1.30BSC		
E	1.90	2.00	2.10
E2	0.95	1.05	1.15
E3	0.20	0.30	0.40
L	0.35	0.40	0.45
L1	0.20	0.25	0.30
h	0.20REF		
K	0.20	0.30	0.40

Land Pattern

Marking Codes

Part Number	Marking Code
ES18P4N3A	<p>M18C=Specific Device Code XXXX=Lot Code</p>

Package Information

Qty: 3k/Reel

Revision History

No.	Version	Date	Revision Item	Request	Function and characteristic checking	Package dimension checking	Typos checking
1	1.0	2017-03	Released Version	Qi Shu Kun	Qi Shu Kun	Liu Jia Ying	Liu Jia Ying