26V Transient Voltage Suppressor

Features

- 6000 Watts Peak Power (tp = 8/20μs)
- Fast Response time: Typically<1ns
- Excellent Clamping Capability
- Low Inductance
- Low profile package

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) 120A (8/20μs)

Mechanical Characteristics

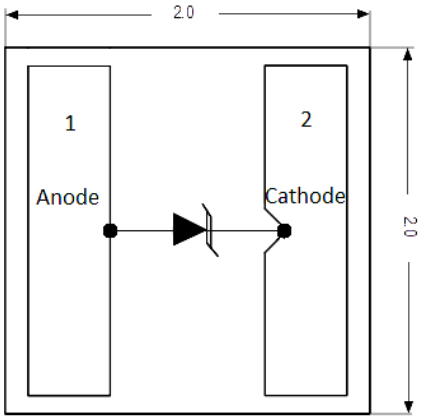
- DFN2020-2L package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS Compliant

Applications

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

Schematic & PIN Configuration

DFN2020-2L

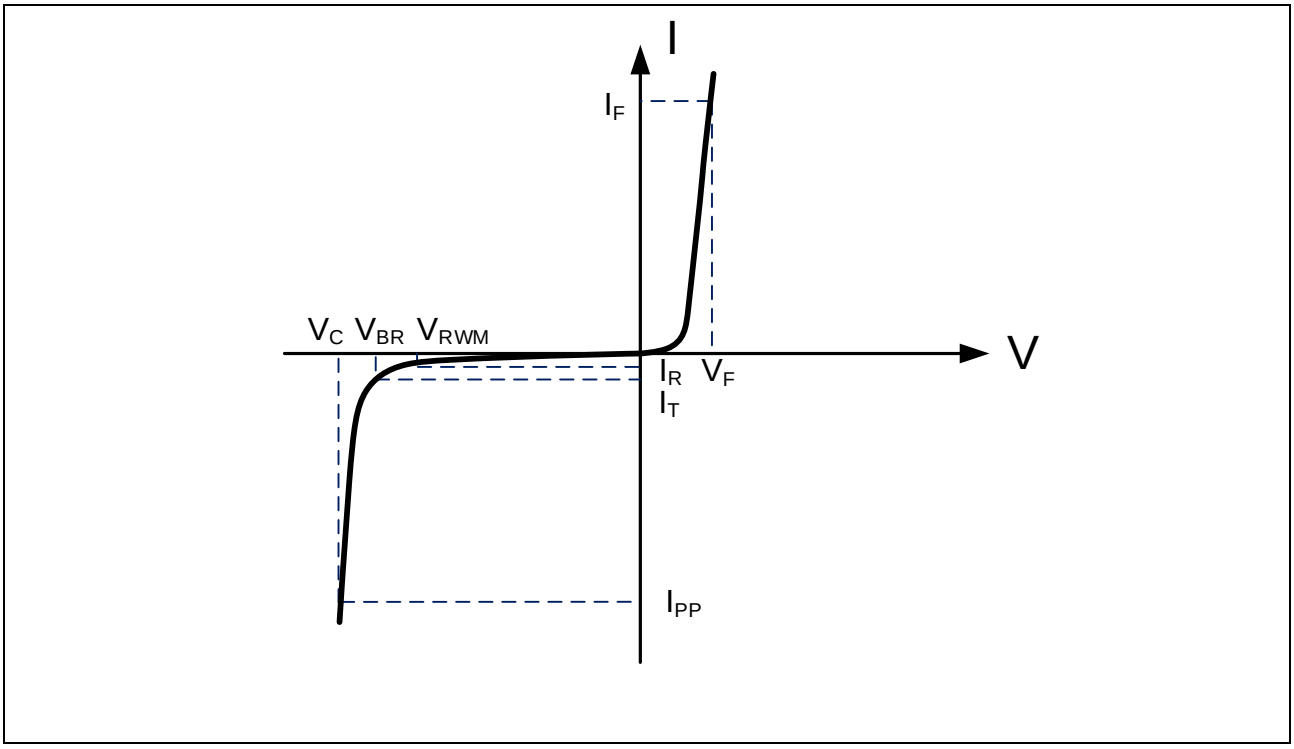


Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Peak Pulse Power (t_p = 8/20μs)	P_{PP}	6000	Watts
Peak Pulse Current (t_p = 8/20μs)	I_{PP}	120	A
Power Dissipation	P_D	800	mW
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°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(T=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	V_{RWM}				26.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	28		30.5	V
Forward Voltage	V_F	I_F=10mA	0.4		1.0	V
Reverse Leakage Current	I_R	V_{RWM}=26V, T=25°C			500	nA
Clamping Voltage (3)	V_C	I_{PP}=120A,t_p=8/20μs		49.0		V
Dynamic Resistance (1) (2) (3)	R_{DYN}	TLP=0.2/100ns		0.06		Ω
Junction Capacitance (3)	C_j	V_R = 0V, f = 1MHz		700		pF

Note1.TLP Setting： t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.

Note2.Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

Note3.These specifications are guaranteed by design and characterization. Not FT item.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

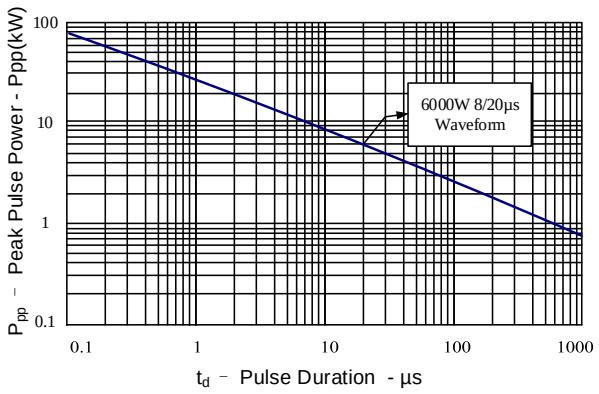


Figure 2: Power Derating Curve

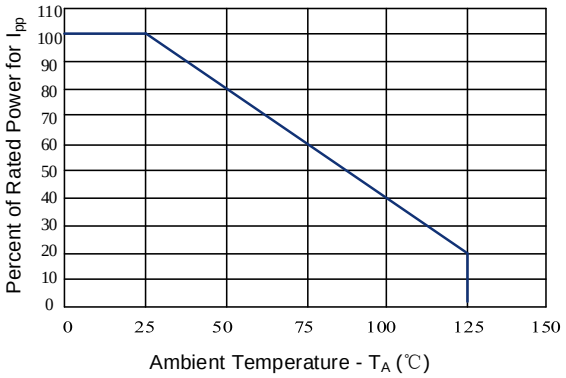


Figure 3: Clamping Voltage vs. Peak Pulse Current

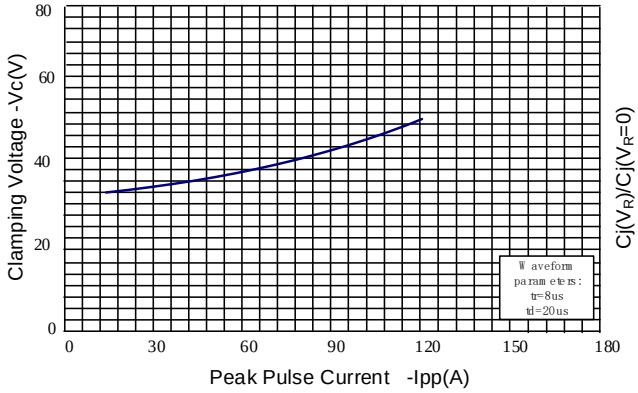


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

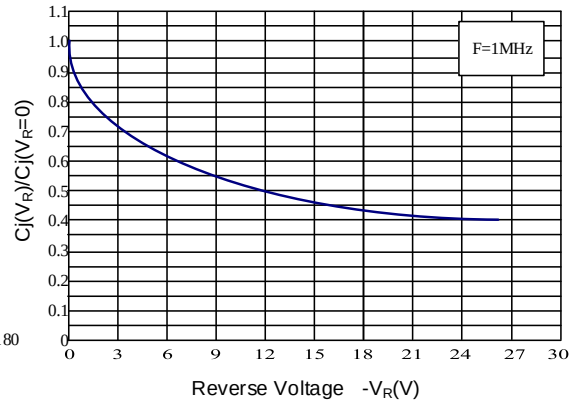


Figure 5: 8/20µs Pulse Waveform

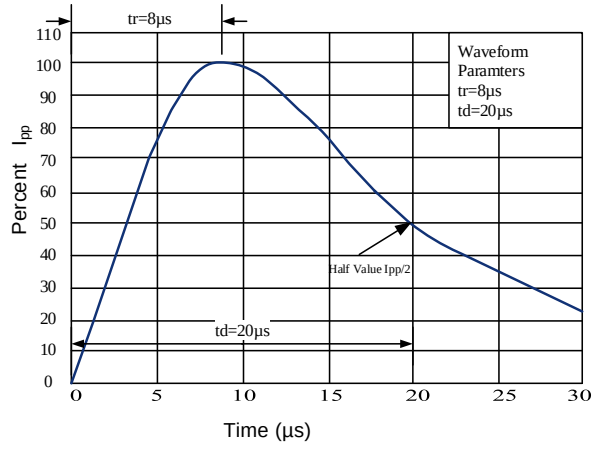
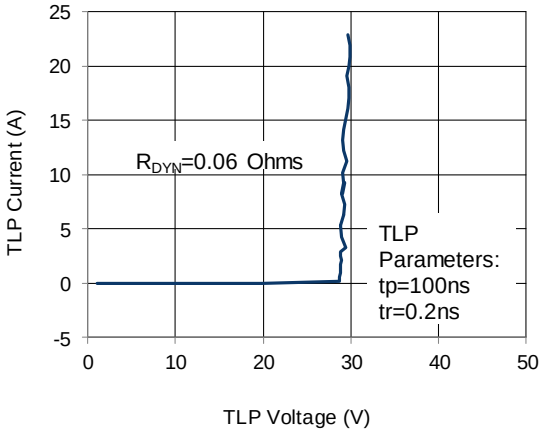
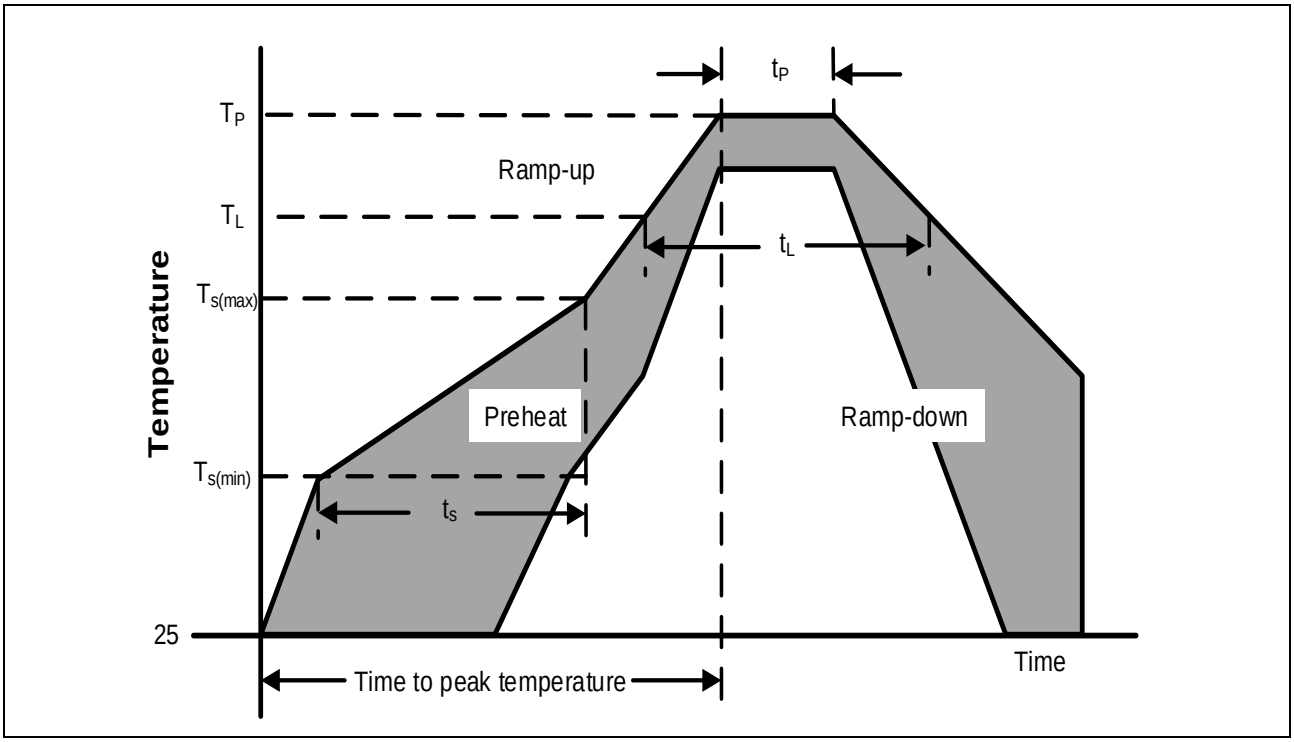


Figure 6: TLP I-V Curve



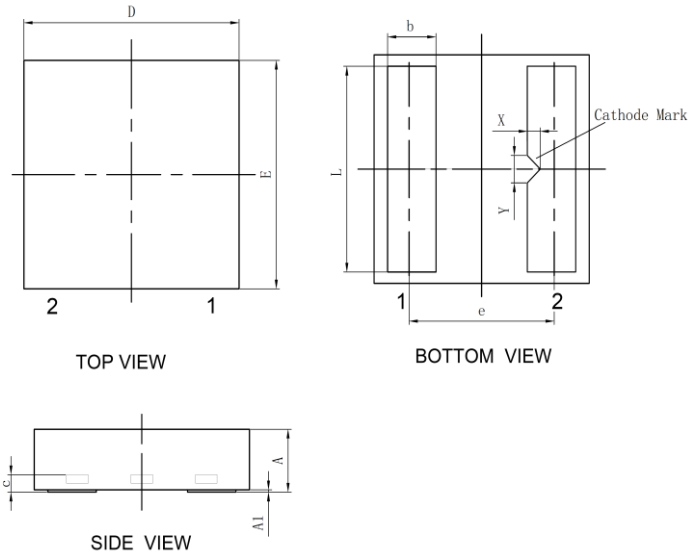
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{S(min)}$)	150°C
	Temperature Max ($T_{S(max)}$)	200°C
	Time (min to max) (t_S)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_P)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Package Dimension

PACKAGE OUTLINE



DFN2020-2L

SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
b	0.35	0.45	0.55
c		0.152REF	
D	1.90	2.00	2.10
e		1.35BSC	
E	1.90	2.00	2.10
L	1.70	1.80	1.90
X	-	0.12	-
Y	-	0.24	-

Ordering Information

Part	Package	Marking	Packing Information
ES26P4NA	DFN2020-2L	Cathode  Anode N26A=Specific Device Code XXXX=Tracking number	3k/Reel

Revision History and Checking Table

Version	Date	Revision Item	Modifier	Function & Spec Checking	Package & Tape Checking
1.0	2017-07-11	Preliminary Version	Liu Jia Ying	Qi Shu Kun	Liu Jia Ying
1.1	2017-07-31	Update package dimension	Liu Jia Ying	Qi Shu Kun	Liu Jia Ying
1.2	2017-08-29	Updated PIN1 for Anode PIN2 for Cathode	Liu Jia Ying	Qi Shu Kun	Liu Jia Ying
1.3	2017-09-23	Adjust VBR after data statistics	Liu Jia Ying	Qi Shu Kun	Liu Jia Ying
1.4	2017-09-28	Adjust VBR spec	Liu Jia Ying	Qi Shu Kun	Liu Jia Ying
1.5	2023-08-28	Update Typeset	Yin Peng	Qi Shu Kun	Liu Jia Ying