Alfa-MOS Technology

AFE6V8UL

2-Line ESD Protection
Low Capacitance Bi-direction TVS

General Description

The AFE6V8UL is a transient voltage suppressors (TVS) which provide a very high level protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). It is designed to replace multilayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

The AFE6V8UL was past ESD transient voltage up to ±15KV (contact) according to IEC61000-4-2 and withstand peak current up to 3.5A for 8/20us pulse according to IEC61000-4-5.

The AFE6V8UL is available in a SOT-23 package. Standard products are Pb-free and Halogen-free.

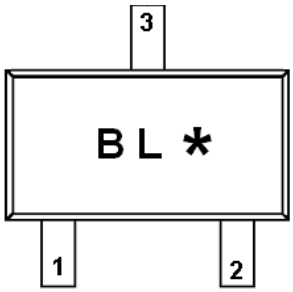
Features

- Stand-off voltage: 5V Max
- Transient protection for each line according to
- IEC61000-4-2 (ESD): ±15KV
- Ultra-low leakage current
- Low clamping voltage
- Solid-state silicon technology

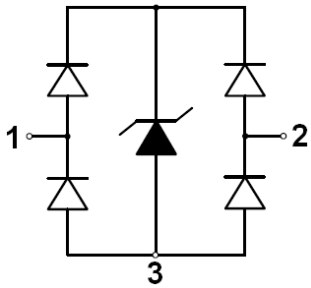
Application

- Cell phone
- PAD
- Notebook
- STB
- LCD TV
- Digital camera
- Other electronics equipments

Pin Description (SOT-23)



Schematic & PIN Configuration(SOT-23)



Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFE6V8ULS23RG	BL*	SOT-23	Tape & Reel	3000 EA

※ BL Device Code
※ * Month Code (A ~ Z)
※ AFE6V8ULS23RG : 7” Tape & Reel ; Pb- Free ; Halogen- Free

Absolute Maximum Ratings

(TA=25℃ Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Peak Pulse Power (tp = 8/20 μs)	P_{pk}	45	W
Peak Pulse Current (tp = 8/20 μs)	I_{PP}	3.5	A
ESD Per IEC 61000– 4 – 2 (Air) ESD Per IEC 61000 – 4 – 2 (Contact)	V_{ESD}	±15 ±15	KV
Operation Junction Temperature	T_J	125	℃
Maximum Lead Temperature for soldering during 10s	T_L	260	℃
Storage temperature range	Tstg	-55 ~ +150	℃

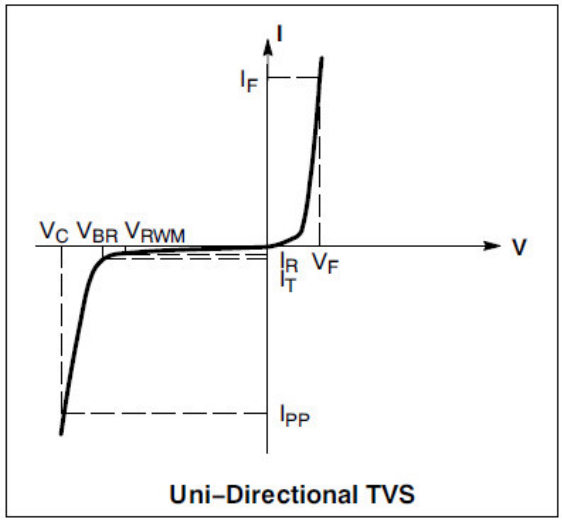
Electrical Characteristics

(TA=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Reverse Stand – Off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T = 1mA	6.5			V
Forward Voltage	V_F	I_F = 10mA	0.4		1.4	V
Reverse Leakage Current	I_R	V_{RWM} = 5V			1	uA
Clamping Voltage	V_{CL}	I_{PP} = 1A (tp = 8/20 μs)			10	V
		I_{PP} = 3.5A (tp = 8/20 μs)			13.5	
Junction Capacitance	C_J	V_R = 0V, f = 1MHz Any I/O pin to GND		0.9	1.2	pF
		V_R = 0V, f = 1MHz Between any I/O pin		0.45	0.6	

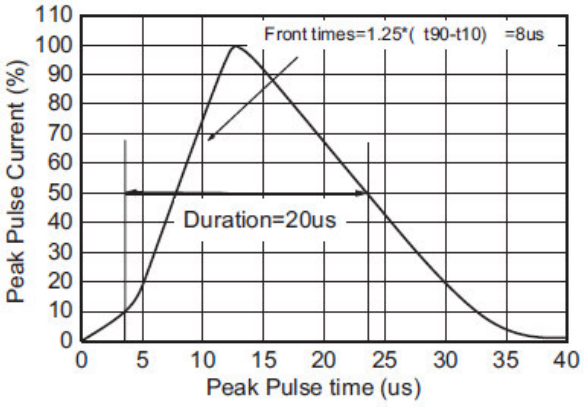
Electronics Parameter

Symbol	Parameter
Vrwm	Peak Reverse Working Voltage
Ir	Reverse Leakage Current @ Vrwm
Vbr	Breakdown Voltage @ It
It	Test Current
Ipp	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @ Ipp
Ppk	Peak Power Dissipation
C	Junction Capacitance
If	Forward Current
Vf	Forward Voltage @ If

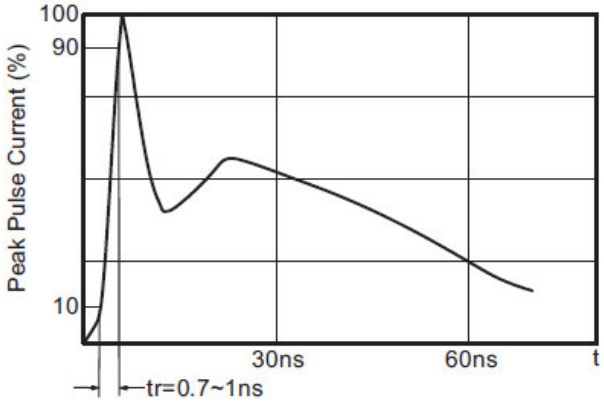


Uni–Directional TVS

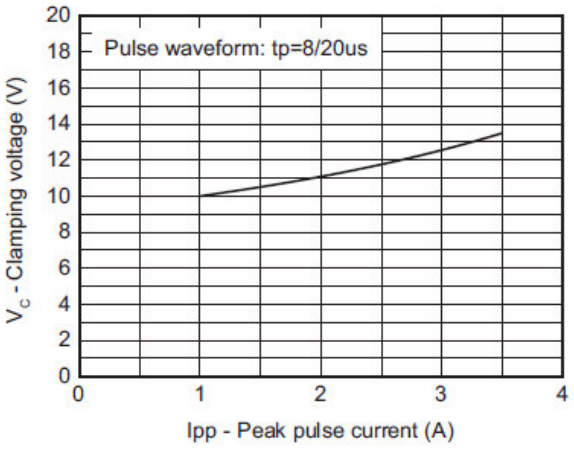
Typical Characteristics



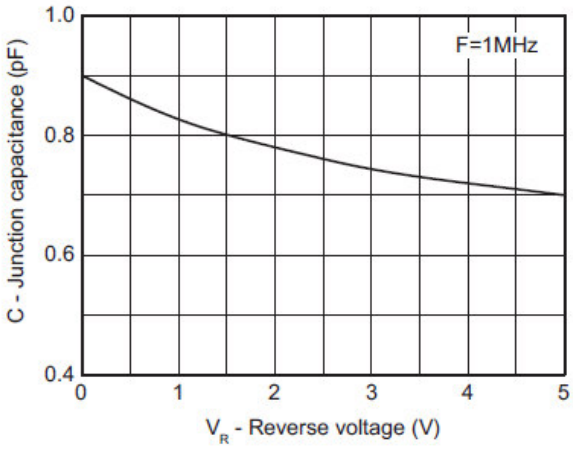
8/20us waveform



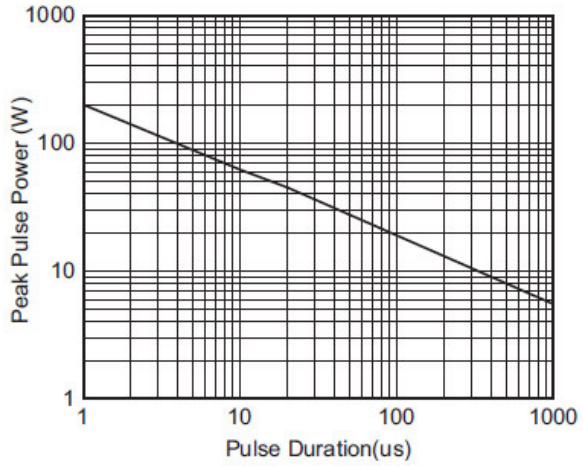
IEC61000-4-2 waveform



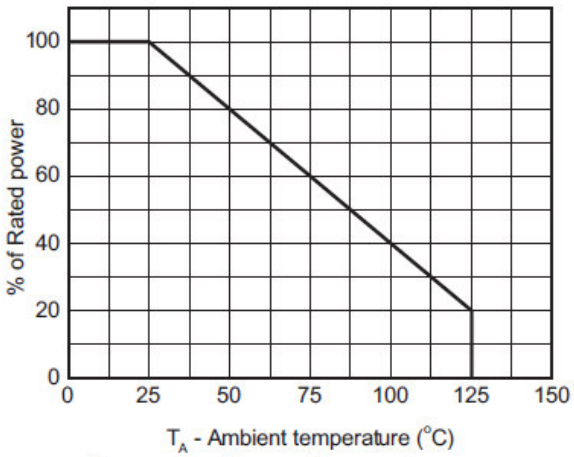
Clamping voltage vs. Peak pulse current



Capacitance vs. Reveres voltage

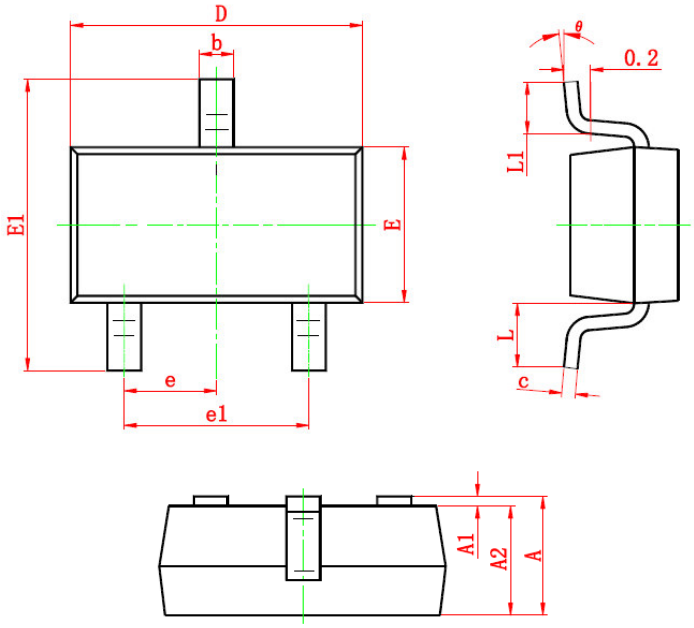


Non-Repetitive Peak Pulse Power vs. Pulse time



Power derating vs. Temperature

Package Information (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

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