SMA6J28A

## Surface Mount Transient Voltage Suppressors

Features

• Plastic package has UL Flammability Classification 94V-0

• Very fast reponse time

SMA (DO-214AC)

$\frac{0.079(2.0)}{0.039(1.0)}$ $\frac{0.110(2.80)}{0.086(2.18)}$

$\frac{0.183(4.65)}{0.157(3.99)}$

$\frac{0.012(0.305)}{0.005(0.13)}$

$\frac{0.096(2.42)}{0.067(1.70)}$

$\frac{0.060(1.52)}{0.030(0.76)}$

0.008(0.203)Max.

$\frac{0.225(5.70)}{0.185(4.70)}$

Mechanical Data

• Case: DO-214AC (SMA) molded plastic

• Polarity: Color band denotes cathode end except Bipolar

• Mounting Position: Any

• Marking Code: 28A
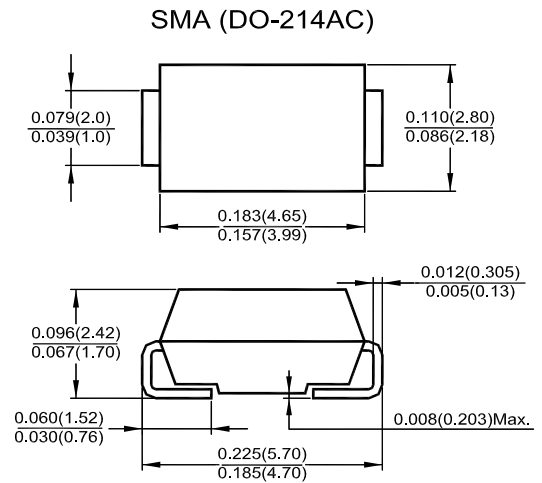
Dimensions in inches and (millimeters)

Absolute Maximum Ratings (T_a = 25 $^{\circ}$C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 µs Waveform [1]	P_{PPM}	Minimum 600	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) [2]	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage (Unidirectional only) at 50 A	V_F	3.5	V
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	$^{\circ}$C

[1] Non-repetitive current pulse and derated above T_a = 25 °C.

[2] Mounted on copper lead area at 5 mm^2 (0.013 mm thick).

Electrical Characteristics (T_a = 25 $^{\circ}$C unless otherwise specified)

Type	I_R Max at V_{RM}			V_{BR} at I_R [1]			V_{CL} at I_{PP} 10/1000 µs		R_D [2] 10/1000 µs	V_{CL} at I_{PP} 8/20 µs		R_D [2] 8/20 µs	$αT$ [3]
	25℃	85℃		Min.	Max.		Max.			Max.			Max.
	µA		V	V		mA	V	A	Ω	V	A	Ω	10-4/℃
SMA6J28A	0.2	1	28	31.1	34.4	1	44	13.8	0.697	51.6	68	0.253	9.8

[1] Pulse test: tp < 50ms.

[2] To calculate maximum clamping voltage at other surge currents, use the following formula: V_{CL}Max = R_D X I_{PP} + V_{BR}Max.
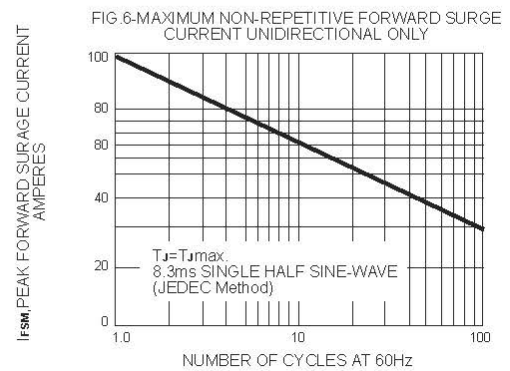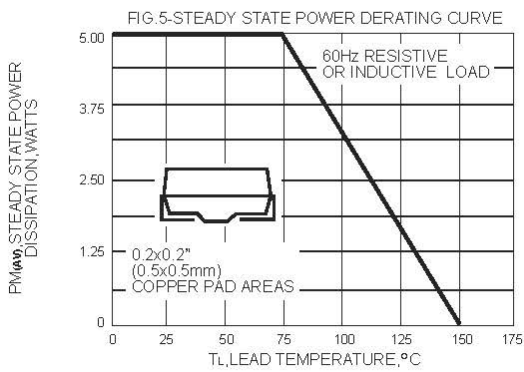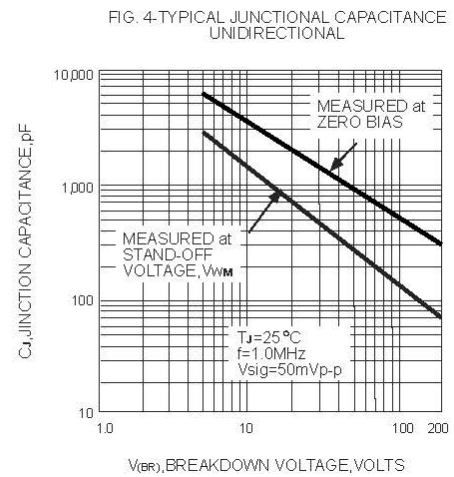
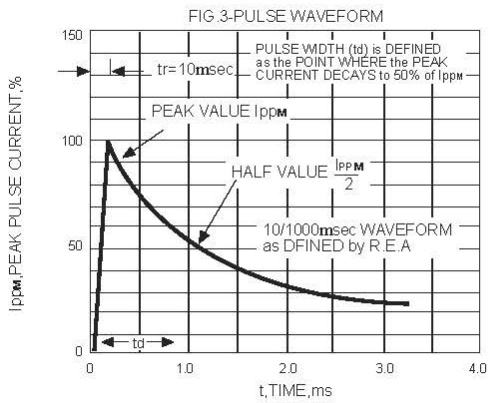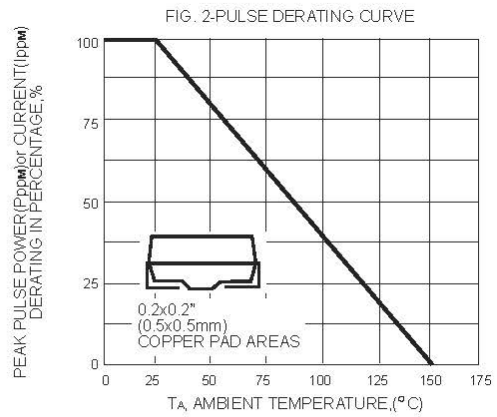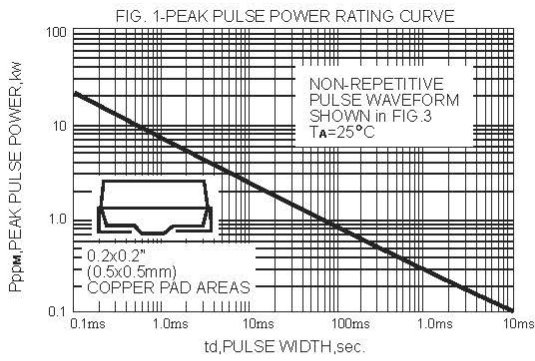[3] To calculate V_{BR} versus junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C X (1 + αT x (T_J - 25)).

TOP DYNAMIC

FIG. 1-PEAK PULSE POWER RATING CURVE

NON-REPETITIVE
PULSE WAVEFORM
SHOWN in FIG.3
T_A=25°C

0.2x0.2"
(0.5x0.5mm)
COPPER PAD AREAS

P_{PPM},PEAK PULSE POWER,Kw

td,PULSE WIDTH,sec.

FIG. 2-PULSE DERATING CURVE

0.2x0.2"
(0.5x0.5mm)
COPPER PAD AREAS

PEAK PULSE POWER(P_{ppm})or CURRENT(I_{pp})
DERATING IN PERCENTAGE,%

T_A, AMBIENT TEMPERATURE,(°C)

FIG.3-PULSE WAVEFORM

PULSE WIDTH (td) is DEFINED
as the POINT WHERE the PEAK
CURRENT DECAYS to 50% of I_{PPM}

tr=10msec.

PEAK VALUE I_{PPM}

HALF VALUE $\frac{I_{PPM}}{2}$

10/1000msec WAVEFORM
as DFINED by R.E.A

I_{PPM},PEAK PULSE CURRENT,%

td

t,TIME,ms

FIG. 4-TYPICAL JUNCTIONAL CAPACITANCE
UNIDIRECTIONAL

MEASURED at
ZERO BIAS

MEASURED at
STAND-OFF
VOLTAGE,V_{WM}

T_J=25 °C
f=1.0MHz
Vsig=50mVp-p

C_J,JINCTION CAPACITANCE,pF

$V_{(BR)}$,BREAKDOWN VOLTAGE,VOLTS

FIG.5-STEADY STATE POWER DERATING CURVE

60Hz RESISTIVE
OR INDUCTIVE LOAD

0.2x0.2"
(0.5x0.5mm)
COPPER PAD AREAS

$P_{M(AV)}$,STEADY STATE POWER
DISSIPATION,WATTS

T_L,LEAD TEMPERATURE,°C

FIG .6-MAXIMUM NON-REPETITIVE FORWARD SURGE
CURRENT UNIDIRECTIONAL ONLY

T_J=$T_J$max.
8.3ms SINGLE HALF SINE-WAVE
(JEDEC Method)

I_{FSM},PEAK FORWARD SURAGE CURRENT
AMPERES

NUMBER OF CYCLES AT 60Hz

TOP DYNAMIC