



Features

- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Fast response time



SMA
(DO-214AC)

Mechanical Data

- Case: JEDEC DO-214AC/SMA molded plastic body
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Polarity symbol marking on body
- Mounting Position: Any
- Weight: 0.07 grams

Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings (Ta=25 unless otherwise noted)

Peak pulse power dissipation at 10/1000μs waveform (Note1, Note2, Fig.1)	P _{PPM}	400	W
Peak pulse current	I _{PP}	38.8	A
Steady state power dissipation at T _A =50°C (Fig.5)	P _{M(AV)}	3.3	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I _{FSM}	60	A
Operating junction and Storage Temperature Range.	T _J , T _{STG}	-65 to +150	°C
Typical thermal resistance junction to lead	R _{θJL}	30	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	120	°C/W

Notes:1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.

2. Mounted on 5.0mm×5.0mm (0.03mm thick) copper pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (Ta=25°C)

Part Number		Device Marking Code		Reverse Stand- Off Voltage	Breakdown Voltage @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
Unidirectional	Bidirectional	UNI	BI	V _{RWM} (V)	V _{BR} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
SMAJ6.0A-TR	SMAJ6.0CA-TR	AG	WE	6.0	6.67-7.37	10	10.3	38.8	800



Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Graph showing Peak Pulse Power (P_{PPM} in kW) versus Pulse Width (t_d in μs) for Copper and Al. The y-axis is logarithmic (0.1 to 10 kW) and the x-axis is logarithmic (1 to 1000 μs). A solid line represents the peak power limit. A horizontal line at approximately 5.5 kW is labeled "Copper Pad Area". A horizontal line at approximately 0.4 kW is labeled "Al (5.0x5.0mm)". A small diagram shows a 0.2x0.2 mm pad on a 2.54 mm substrate.

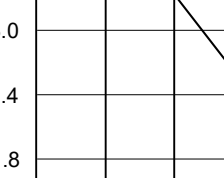
A line graph showing the derating of peak pulse power or current as a function of ambient temperature. The y-axis is labeled 'Peak Pulse Power (P_{PP}) or Current (I_{PP}) Derating in Percentage %' and ranges from 0 to 100 in increments of 20. The x-axis is labeled ' T_A -Ambient Temperature ($^{\circ}C$)' and ranges from 0 to 175 in increments of 25. A single straight line starts at (25, 100) and ends at (150, 0), indicating a linear derating of 1% per $^{\circ}C$ over the range of 25°C to 150°C.

T_A -Ambient Temperature ($^{\circ}C$)	Derating in Percentage %
25	100
50	80
75	60
100	40
125	20
150	0

The graph shows the decay of peak pulse current over time. The y-axis represents the peak pulse current as a percentage of the RMS current ($I_{PPM} - \text{Peak Pulse Current, \% } I_{RMS}$), ranging from 0 to 150. The x-axis represents time in milliseconds ($t\text{-Time (ms)}$), ranging from 0 to 4.0. The waveform starts at 150% I_{RMS} and decays. Key parameters and points are labeled:

- $t_r = 10 \mu s$: Rise time.
- $T_T = 2.5 \mu s$: Time constant.
- Peak Value I_{PPM} : The maximum value of the pulse, 100% I_{RMS} .
- Half Value $I_{PPM} (I_{PPM} / 2)$: The value of the pulse when it has decayed to half its peak value, 50% I_{RMS} .
- 10/1000 μs Waveform as defined by R.E.A.: The waveform type.

Figure 10 is a log-log plot of Capacitance (pF) versus Reverse Breakdown Voltage (V_{BR}). The y-axis ranges from 1 to 10,000 pF, and the x-axis ranges from 1 to 1,000 V. The plot shows three curves: Bi-directional $V=0V$ (solid line), Uni-directional $V=0V$ (solid line), and Bi-directional @ V_R (dashed line). A horizontal line at 250 pF is labeled $T_J=25^\circ C$ and $f=10MHz$. A horizontal line at 50 pF is labeled $V_{sig}=50 mV_{p-p}$. The Bi-directional $V=0V$ curve peaks at approximately 2,500 pF around 10 V. The Uni-directional $V=0V$ curve starts at approximately 250 pF and decreases. The Bi-directional @ V_R curve starts at approximately 250 pF and decreases more steeply.



A line graph showing the relationship between Average Steady State Power Dissipation ($P_{M(AV)}$) in Watts and Ambient Temperature (T_A) in degrees Celsius. The y-axis ranges from 0 to 3.6 W with major grid lines every 0.6 W. The x-axis ranges from 0 to 175 °C with major grid lines every 25 °C. A single straight line starts at (50, 3.4) and ends at (150, 0). The line passes through the points (75, 2.55), (100, 1.7), and (125, 0.85).

T_A - Ambient Temperature (°C)	$P_{M(AV)}$, Steady State Power Dissipation (W)
50	3.4
75	2.55
100	1.7
125	0.85
150	0

The graph illustrates the relationship between the peak forward surge current and the number of cycles at 60Hz. The y-axis represents the peak forward surge current in amperes (A), ranging from 0 to 45. The x-axis represents the number of cycles at 60Hz, ranging from 1 to 100. The curve shows a decreasing trend, indicating that the peak forward surge current decreases as the number of cycles increases.

Number of Cycles at 60Hz	Peak Forward Surge Current (A)
1	40
2	35
5	30
10	26
20	21
50	15
100	13



Package Outline Dimensions

SMA(DO-214AC)



Dimensions in inches and (millimeters)



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