SMDA05C Series

Bi-directional TVS Array for High-Speed Data Line Protection

The SMDA05C transient voltage suppressor series is designed to protect equipment attached to up to four high speed communication lines from ESD, EFT, and lightning.

Features:

- SO−8 Package
- Peak Power − 300 W 8 x 20 μS
- ESD Rating:
  IEC 61000−4−2 (ESD) ±15 kV (air) ±8 kV (contact)
  IEC 61000−4−4 (EFT) 40 A (5/50 ns)
  IEC 61000−4−5 (lightning) 12 A (8/20 μs)
- UL Flammability Rating of 94 V−0
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications:

- High Speed Communication Line Protection
- Data and I/O Lines
- Microprocessor Based Equipment
- LAN/WAN Equipment
- Servers
- Notebook and Desktop PC
- Serial and Parallel Ports
- Peripherals

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Power Dissipation 8 x 20 μs @ T_A = 25°C (Note 1)	P_{pk}	300	W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C
Lead Solder Temperature − Maximum 10 Seconds Duration	T_L	260	°C

1. Non−repetitive current pulse 8 x 20 μS exponential decay waveform

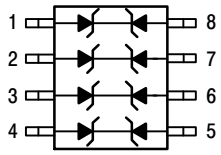


ON Semiconductor®

http://onsemi.com

SO−8
VOLTAGE SUPPRESSOR
300 WATTS PEAK POWER

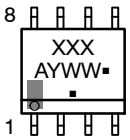
PIN CONFIGURATION AND SCHEMATIC





SO−8
CASE 751

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 3 of this data sheet.

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SMDA05C ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	–	–	5.0	V
Reverse Breakdown Voltage @ I_t = 1.0 mA	V_{BR}	6.0	–	–	V
Reverse Leakage Current @ V_{RWM} = 5 Volts	I_R	N/A	–	20	μA
Maximum Clamping Voltage @ I_{PP} = 1.0 A, 8 x 20 μs	V_C	N/A	–	9.8	V
Maximum Clamping Voltage @ I_{PP} = 5.0 A, 8 x 20 μs	V_C	N/A	–	11	V
Maximum Peak Pulse Current, 8 x 20 μs	I_{PP}	–	–	17	A
Junction Capacitance @ V_R = 0 V, f = 1 MHz	C_J	–	–	350	pF

SMDA12C ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	–	–	12	V
Reverse Breakdown Voltage @ I_t = 1.0 mA	V_{BR}	13.3	–	–	V
Reverse Leakage Current @ V_{RWM} = 12 Volts	I_R	N/A	–	1.0	μA
Maximum Clamping Voltage @ I_{PP} = 1.0 A, 8 x 20 μs	V_C	N/A	–	19	V
Maximum Clamping Voltage @ I_{PP} = 5.0 A, 8 x 20 μs	V_C	N/A	–	24	V
Maximum Peak Pulse Current, 8 x 20 μs	I_{PP}	–	–	12	A
Junction Capacitance @ V_R = 0 V, f = 1 MHz	C_J	–	–	120	pF

SMDA15C ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	–	–	15	V
Reverse Breakdown Voltage @ I_t = 1.0 mA	V_{BR}	16.7	–	–	V
Reverse Leakage Current @ V_{RWM} = 15 Volts	I_R	N/A	–	1.0	μA
Maximum Clamping Voltage @ I_{PP} = 1.0 A, 8 x 20 μs	V_C	N/A	–	24	V
Maximum Clamping Voltage @ I_{PP} = 5.0 A, 8 x 20 μs	V_C	N/A	–	30	V
Maximum Peak Pulse Current, 8 x 20 μs	I_{PP}	–	–	10	A
Junction Capacitance @ V_R = 0 V, f = 1 MHz	C_J	–	–	75	pF

SMDA24C ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	–	–	24	V
Reverse Breakdown Voltage @ I_t = 1.0 mA	V_{BR}	26.7	–	–	V
Reverse Leakage Current @ V_{RWM} = 24 Volts	I_R	N/A	–	1.0	μA
Maximum Clamping Voltage @ I_{PP} = 1.0 A, 8 x 20 μs	V_C	N/A	–	43	V
Maximum Clamping Voltage @ I_{PP} = 5.0 A, 8 x 20 μs	V_C	N/A	–	55	V
Maximum Peak Pulse Current, 8 x 20 μs	I_{PP}	–	–	5.0	A
Junction Capacitance @ V_R = 0 V, f = 1 MHz	C_J	–	–	50	pF

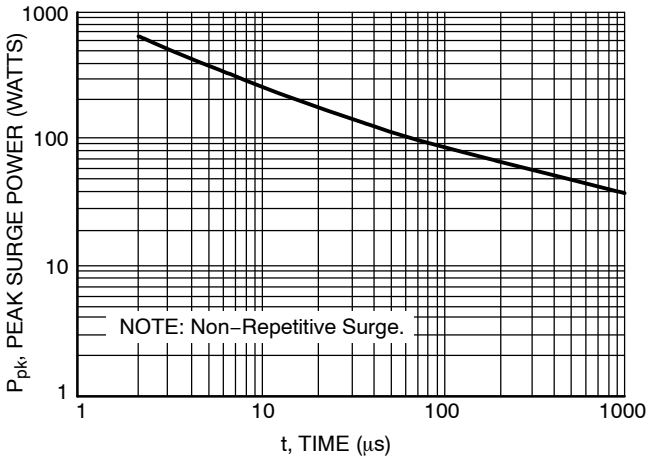


Figure 1. Pulse Width

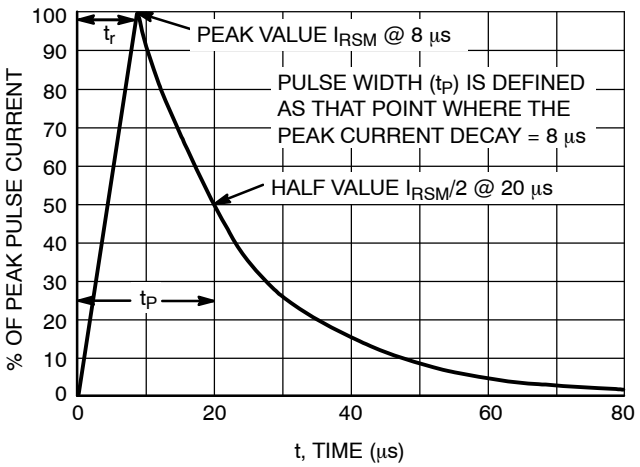


Figure 2. 8 × 20 μs Pulse Waveform

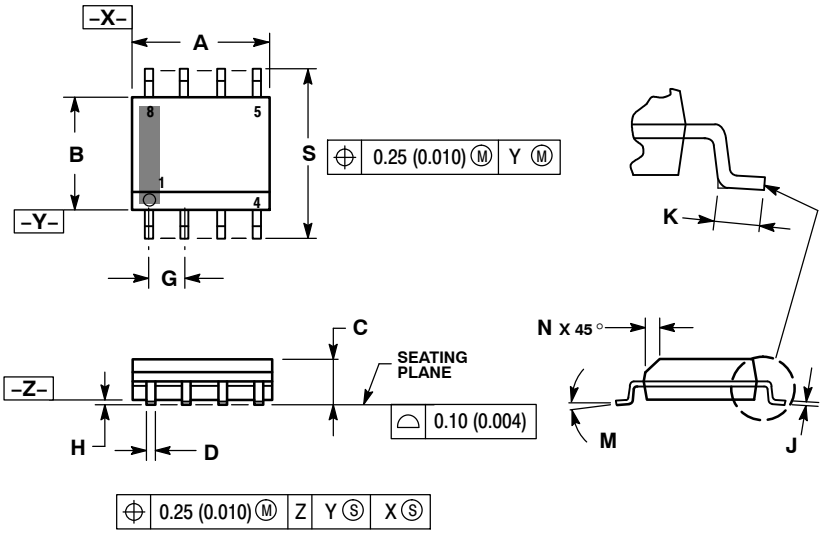
ORDERING INFORMATION

Device	Marking	Package	Shipping†
SMDA05CDR2G	AAA	SO−8 (Pb−Free)	2500 / Tape & Reel
SMDA12CDR2G	AAC	SO−8 (Pb−Free)	2500 / Tape & Reel
SMDA15CDR2G	AAD	SO−8 (Pb−Free)	2500 / Tape & Reel
SMDA24CDR2G	AAE	SO−8 (Pb−Free)	2500 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

PACKAGE DIMENSIONS

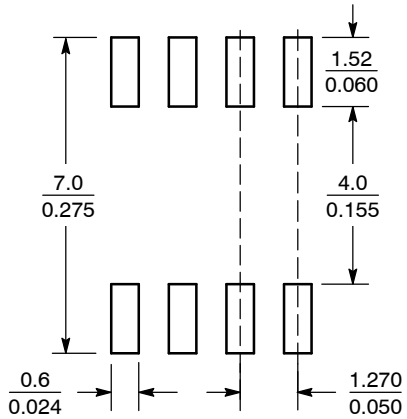
SOIC−8 NB
CASE 751−07
ISSUE AK



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. 751−01 THRU 751−06 ARE OBSOLETE. NEW STANDARD IS 751−07.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.197
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
M	0 °	8 °	0 °	8 °
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

SOLDERING FOOTPRINT*



SCALE 6:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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