

BAS16W1

Ultra High Speed Switching Diodes

These Silicon Epitaxial Planar Diodes are designed for use in ultra high speed switching applications. These devices are housed in the SC-88 package which is designed for low power surface mount applications.

Features

- Fast t_{rr} , < 3.0 ns
- Low C_D , < 2.0 pF
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant*

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	100	V
Peak Reverse Voltage	V_{RM}	100	V
Forward Current (Note 1)	I_F	200	mAdc
Peak Forward Current (Note 1)	I_{FM}	300	mAdc
Peak Forward Surge Current (10 ms) (Note 1)	I_{FSM}	1.0	Adc

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. This is maximum rating for a single diode. In the case of using 2 or 3 diodes, the maximum ratings per diodes is 75% of the single diode.

THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation	P_D	300	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

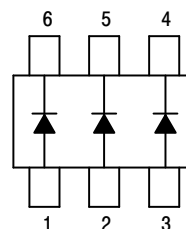


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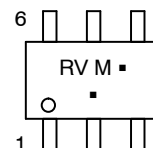
www.onsemi.com



SC-88
CASE 419B
STYLE 15



MARKING DIAGRAM



RV = Specific Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
BAS16W1T1G	SC-88 (Pb-Free)	3000 / Tape & Reel
NSVBAS16W1T1G	SC-88 (Pb-Free)	3000 / 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.

BAS16W1

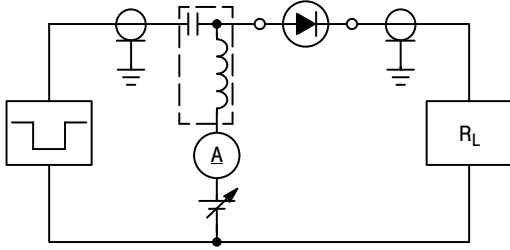
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	I_R	$V_R = 30\text{ V}$	–	0.1	μA_{dc}
		$V_R = 80\text{ V}$	–	0.5	
		$V_R = 100\text{ V}$	–	1.0	
Forward Voltage	V_F	$I_F = 1\text{ mA}$	–	0.72	Vdc
		$I_F = 10\text{ mA}$	–	0.85	
		$I_F = 50\text{ mA}$	–	1.0	
		$I_F = 100\text{ mA}$	–	1.2	
Reverse Breakdown Voltage	V_R	$I_R = 100\ \mu\text{A}$	100	–	Vdc
Diode Capacitance	C_D	$V_R = 0, f = 1.0\text{ MHz}$	–	2.0	pF
Reverse Recovery Time (Figure 1)	t_{rr} (Note 2)	$I_F = 10\text{ mA}, V_R = 6.0\text{ V}, R_L = 100\ \Omega, I_{rr} = 0.1 I_R$	–	3.0	ns

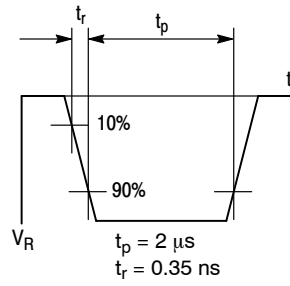
2. t_{rr} Test Circuit

BAS16W1

RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE



OUTPUT PULSE

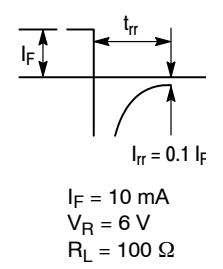


Figure 1. Reverse Recovery Time Equivalent Test Circuit

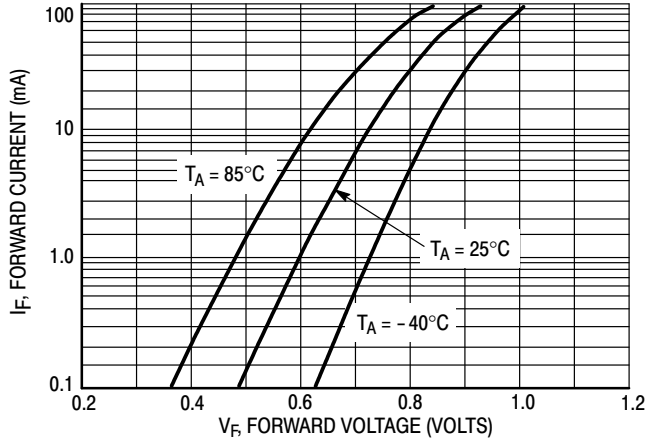


Figure 2. Forward Voltage

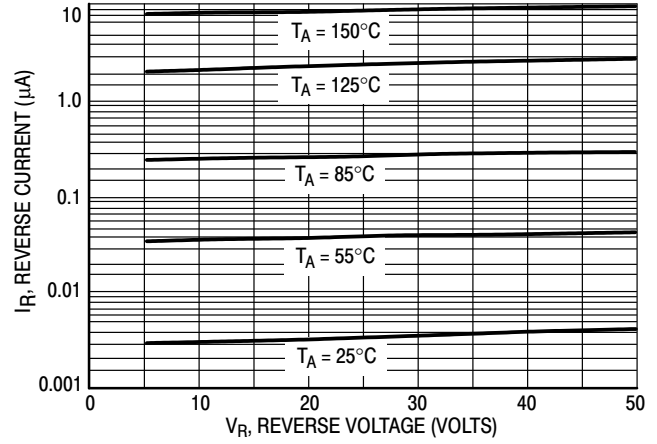


Figure 3. Leakage Current

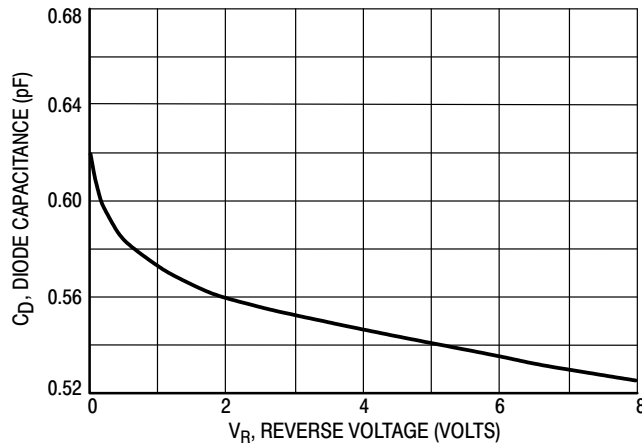


Figure 4. Capacitance

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

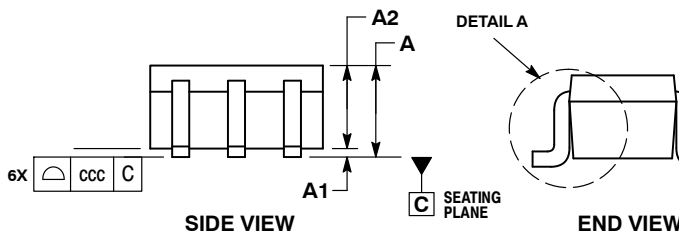
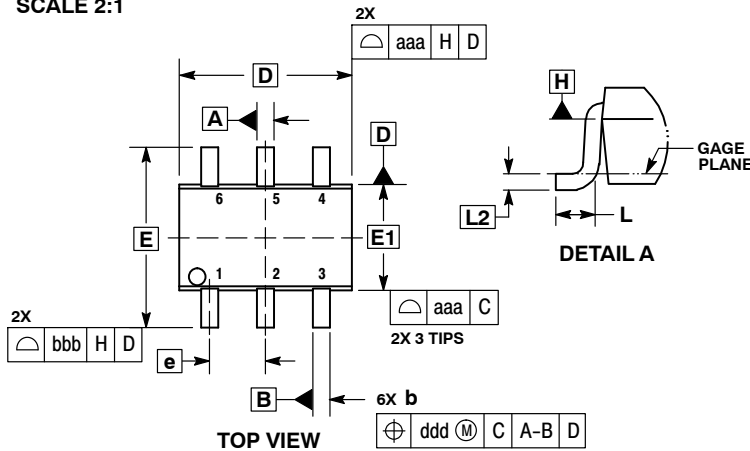
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1
SCALE 2:1

SC-88/SC70-6/SOT-363
CASE 419B-02
ISSUE Y

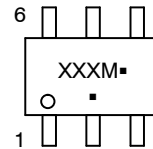
DATE 11 DEC 2012



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.20 PER END.
 4. DIMENSIONS D AND E1 AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AND DATUM H.
 5. DATUMS A AND B ARE DETERMINED AT DATUM H.
 6. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.08 AND 0.15 FROM THE TIP.
 7. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 TOTAL IN EXCESS OF DIMENSION b AT MAXIMUM MATERIAL CONDITION. THE DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	1.10	---	---	0.043
A1	0.00	---	0.10	0.000	---	0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.010
C	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.070	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			0.006 BSC		
aaa	0.15			0.006		
bbb	0.30			0.012		
ccc	0.10			0.004		
ddd	0.10			0.004		

GENERIC MARKING DIAGRAM*



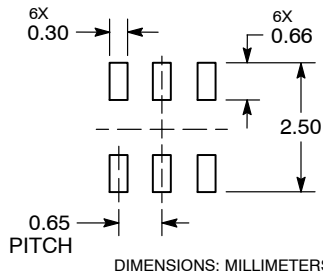
- XXX = Specific Device Code
- M = Date Code*
- = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or position may vary depending upon manufacturing location.

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

RECOMMENDED SOLDERING FOOTPRINT*



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

STYLES ON PAGE 2

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DESCRIPTION:	SC-88/SC70-6/SOT-363	PAGE 1 OF 3

SC-88/SC70-6/SOT-363
CASE 419B-02
ISSUE Y


DATE 11 DEC 2012

- | | | | | | |
|---|---|--|--|--|--|
| STYLE 1:
PIN 1. EMITTER 2
2. BASE 2
3. COLLECTOR 1
4. EMITTER 1
5. BASE 1
6. COLLECTOR 2 | STYLE 2:
CANCELLED | STYLE 3:
CANCELLED | STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. COLLECTOR
4. EMITTER
5. BASE
6. ANODE | STYLE 5:
PIN 1. ANODE
2. ANODE
3. COLLECTOR
4. EMITTER
5. BASE
6. CATHODE | STYLE 6:
PIN 1. ANODE 2
2. N/C
3. CATHODE 1
4. ANODE 1
5. N/C
6. CATHODE 2 |
| STYLE 7:
PIN 1. SOURCE 2
2. DRAIN 2
3. GATE 1
4. SOURCE 1
5. DRAIN 1
6. GATE 2 | STYLE 8:
CANCELLED | STYLE 9:
PIN 1. EMITTER 2
2. EMITTER 1
3. COLLECTOR 1
4. BASE 1
5. BASE 2
6. COLLECTOR 2 | STYLE 10:
PIN 1. SOURCE 2
2. SOURCE 1
3. GATE 1
4. DRAIN 1
5. DRAIN 2
6. GATE 2 | STYLE 11:
PIN 1. CATHODE 2
2. CATHODE 2
3. ANODE 1
4. CATHODE 1
5. CATHODE 1
6. ANODE 2 | STYLE 12:
PIN 1. ANODE 2
2. ANODE 2
3. CATHODE 1
4. ANODE 1
5. ANODE 1
6. CATHODE 2 |
| STYLE 13:
PIN 1. ANODE
2. N/C
3. COLLECTOR
4. EMITTER
5. BASE
6. CATHODE | STYLE 14:
PIN 1. VREF
2. GND
3. GND
4. IOUT
5. VEN
6. VCC | STYLE 15:
PIN 1. ANODE 1
2. ANODE 2
3. ANODE 3
4. CATHODE 3
5. CATHODE 2
6. CATHODE 1 | STYLE 16:
PIN 1. BASE 1
2. EMITTER 2
3. COLLECTOR 2
4. BASE 2
5. EMITTER 1
6. COLLECTOR 1 | STYLE 17:
PIN 1. BASE 1
2. EMITTER 1
3. COLLECTOR 2
4. BASE 2
5. EMITTER 2
6. COLLECTOR 1 | STYLE 18:
PIN 1. VIN1
2. VCC
3. VOUT2
4. VIN2
5. GND
6. VOUT1 |
| STYLE 19:
PIN 1. IOUT
2. GND
3. GND
4. V CC
5. V EN
6. V REF | STYLE 20:
PIN 1. COLLECTOR
2. COLLECTOR
3. BASE
4. EMITTER
5. COLLECTOR
6. COLLECTOR | STYLE 21:
PIN 1. ANODE 1
2. N/C
3. ANODE 2
4. CATHODE 2
5. N/C
6. CATHODE 1 | STYLE 22:
PIN 1. D1 (i)
2. GND
3. D2 (j)
4. D2 (c)
5. VBUS
6. D1 (c) | STYLE 23:
PIN 1. Vn
2. CH1
3. Vp
4. N/C
5. CH2
6. N/C | STYLE 24:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. CATHODE
5. CATHODE
6. CATHODE |
| STYLE 25:
PIN 1. BASE 1
2. CATHODE
3. COLLECTOR 2
4. BASE 2
5. EMITTER
6. COLLECTOR 1 | STYLE 26:
PIN 1. SOURCE 1
2. GATE 1
3. DRAIN 2
4. SOURCE 2
5. GATE 2
6. DRAIN 1 | STYLE 27:
PIN 1. BASE 2
2. BASE 1
3. COLLECTOR 1
4. EMITTER 1
5. EMITTER 2
6. COLLECTOR 2 | STYLE 28:
PIN 1. DRAIN
2. DRAIN
3. GATE
4. SOURCE
5. DRAIN
6. DRAIN | STYLE 29:
PIN 1. ANODE
2. ANODE
3. COLLECTOR
4. EMITTER
5. BASE/ANODE
6. CATHODE | STYLE 30:
PIN 1. SOURCE 1
2. DRAIN 2
3. DRAIN 2
4. SOURCE 2
5. GATE 1
6. DRAIN 1 |

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J	ADDED STYLE 20. REQ BY M. ATANOVICH.	11 OCT 01
K	UPDATED STYLE 15 WAS PIN 1, 2 AND 3: ANODE. PIN 4, 5, AND 6 CATHODE. ADDED STYLE 21. REQ BY M. ATANOVICH	03 APR 02
L	ADDED STYLE 22. REQ BY S. CHANG	25 OCT 02
M	ADDED STYLE 23. REQ BY B. BLACKMON	04 DEC 02
N	ADDED STYLE 24. REQ BY B. BLACKMON	09 JAN 03
P	ADDED STYLE 25. REQ BY S. CHANG	09 MAY 03
R	REMOVED THE "1" AFTER EMITTER. REQ BY S. CHANG	03 JUN 03
S	ADDED STYLE 26. REQ BY A. BINEYARD	18 AUG 03
T	ADDED STYLE 27. REQ. BY M. SWEADOR	23 OCT 2003
U	ADDED STYLES 28 AND 29. REQ. BY A. BINEYARD AND S. BACHMAN	22 JAN 2004
V	ADDED NOM VALUES AND CHANGED DIMS TO INDUSTRY STANDARD. REQ. BY D. TRUHITTE	31 JAN 2005
W	ADDED STYLE 30. REQ. BY L. DELUCA.	26 JAN 2006
Y	UPDATED & REDREW TO JEDEC STANDARDS. REQ. BY D. TRUHITTE.	11 DEC 2012

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