

## Features

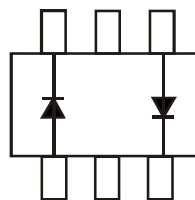
- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High Reverse Breakdown Voltage
- Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208<sup>(e3)</sup>
- Weight: 0.003 grams (Approximate)



Top View



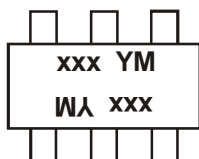
Top View  
Internal Schematic

## Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
BAS20DW-7	Commercial	SOT363	3,000/Tape & Reel
BAS20DW-13	Commercial	SOT363	10,000/Tape & Reel
BAS20DWQ-13	Automotive	SOT363	10,000/Tape & Reel
BAS21DW-7	Commercial	SOT363	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/product-compliance-definitions/>.
  5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



xxx = Product Type Marking Code:  
 BAS20DW Marking: KT2 or KT3  
 BAS21DW Marking: KT3  
 YM = Date Code Marking  
 Y = Year (ex: F = 2018)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2005	2006	...	2018	2019	2020	2021	2022	2023	2024	2025
Code	S	T	...	F	G	H	I	J	K	L	M

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	BAS20DW	BAS21DW	Unit
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	200	250	V
Working Peak Reverse Voltage	V <sub>RWM</sub>	150	200	V
DC Blocking Voltage	V <sub>R</sub>			
RMS Reverse Voltage	V <sub>R(RMS)</sub>	106	141	V
Forward Continuous Current (Note 8)	I <sub>FM</sub>		400	mA
Average Rectified Output Current (Note 8)	I <sub>O</sub>		200	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>		2.5	A
			0.5	
Repetitive Peak Forward Surge Current	I <sub>FRM</sub>		625	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	BAS20DW BAS21DW	V <sub>(BR)R</sub>	200 250	— —	V	I <sub>R</sub> = 100μA
Forward Voltage		V <sub>F</sub>	—	1.0 1.25	V	I <sub>F</sub> = 100mA I <sub>F</sub> = 200mA
Reverse Current @ Rated DC Blocking Voltage (Note 7)		I <sub>R</sub>	—	100 15	nA μA	T <sub>J</sub> = +25°C T <sub>J</sub> = +100°C
Total Capacitance		C <sub>T</sub>	—	5.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time		t <sub>RR</sub>	—	50	ns	I <sub>F</sub> = I <sub>R</sub> = 30mA, I <sub>RR</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

- Notes:
- Part mounted on FR-4 substrate, 2 oz Cu pad layout board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
  - Short duration pulse test used to minimize self-heating effect.
  - Double Diode Loaded in Parallel. For Single Diode or Double Diode Loaded in Series, the continuous forward current should be reduced by half.

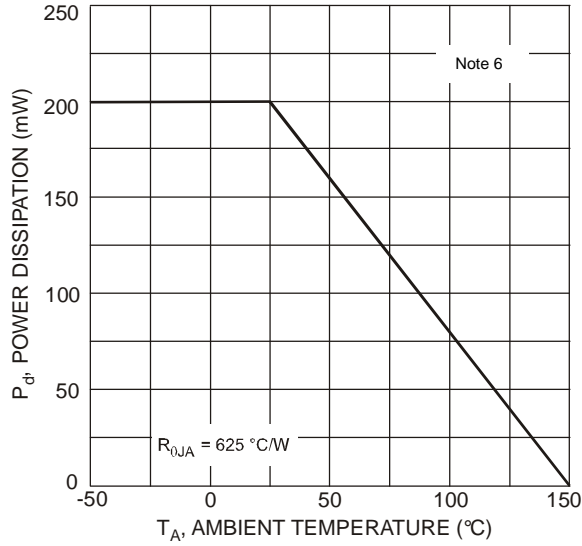


Fig. 1 Derating Curve - Total

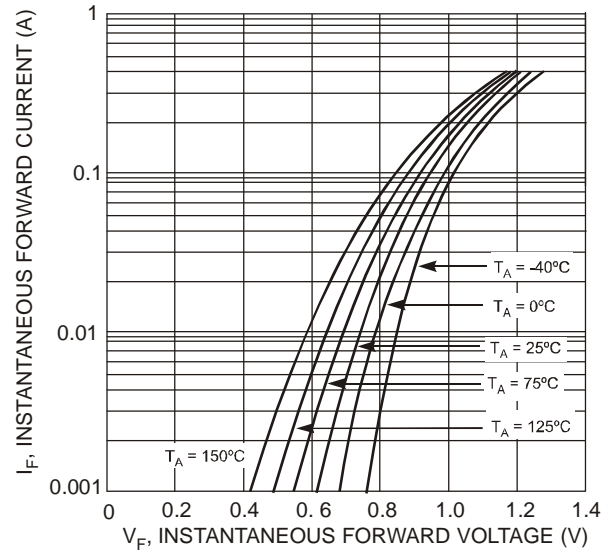


Fig. 2 Typical Forward Characteristics

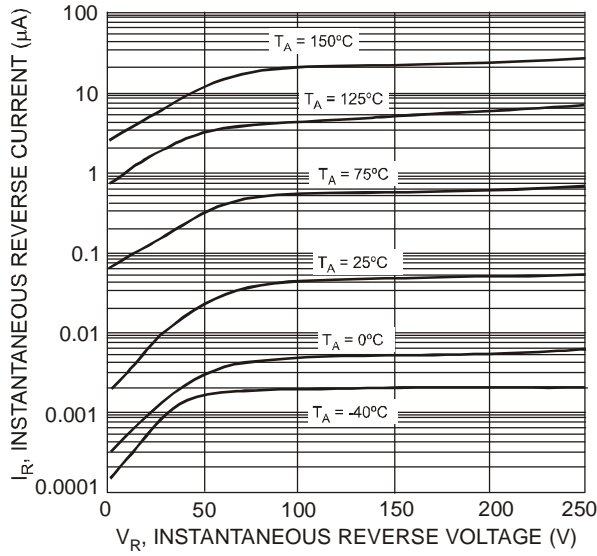


Fig. 3 Typical Reverse Characteristics

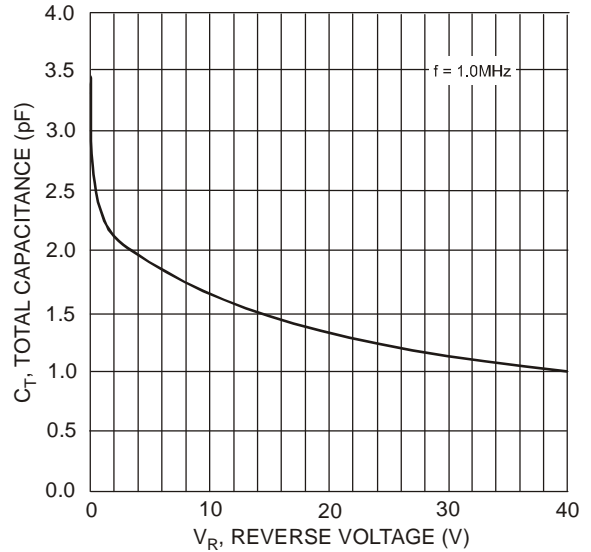
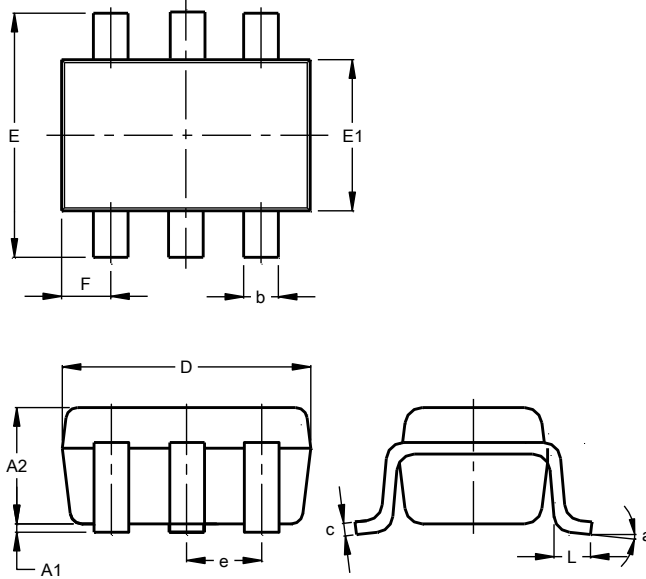


Fig. 4 Typical Capacitance vs. Reverse Voltage

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT363**

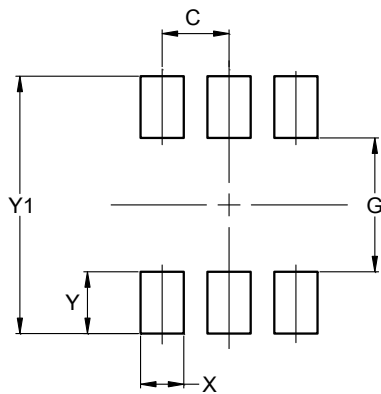


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT363**



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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