

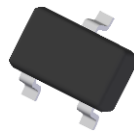
SURFACE MOUNT FAST SWITCHING DIODE
Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High 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)**

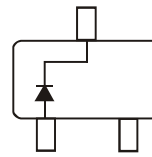
Mechanical Data

- Case: SOT323
- 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: Solderable per MIL-STD-202, Method 208 Ⓢ
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Weight: 0.006 grams (Approximate)

SOT323



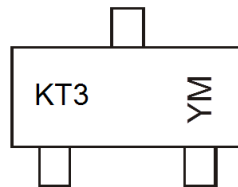
Top View


 Top View
Internal Schematic

Ordering Information (Notes 4 & 5)

Part Number	Compliance	Case	Packaging
BAS21WQ-7-F	Automotive	SOT323	3,000/Tape & Reel
BAS21WQ-13-F	Automotive	SOT323	10,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html 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. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


KT3 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year, ex: D = 2016
 M = Month, ex: 9 = September

Date Code Key

Year	2000	2001	...	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Code	L	M	...	A	B	C	D	E	F	G	H	I	J

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_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V _{RRM}	250	V
Working Peak Reverse Voltage	V _{RWM}	200	V
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	141	V
Forward Continuous Current (Note 6)	I _{FM}	400	mA
Average Rectified Output Current (Note 6)	I _O	200	mA
Non-Repetitive Peak Forward Surge Current	I _{FSM}	@ t = 1.0μs	2.5
		@ t = 1.0s	0.5
Repetitive Peak Forward Surge Current	I _{FRM}	625	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	250	—	V	I _R = 100μA
Forward Voltage	V _F	—	1.0 1.25	V	I _F = 100mA I _F = 200mA
Reverse Current @ Rated DC Blocking Voltage (Note 7)	I _R	—	100 15	nA μA	T _J = +25°C T _J = +100°C
Total Capacitance	C _T	—	5.0	pF	V _R = 0, f = 1.0MHz
Reverse Recovery Time	t _{RR}	—	50	ns	I _F = I _R = 30mA, I _{RR} = 0.1 x I _R , R _L = 100Ω

Notes: 6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
7. Short duration pulse test used to minimize self-heating effect.

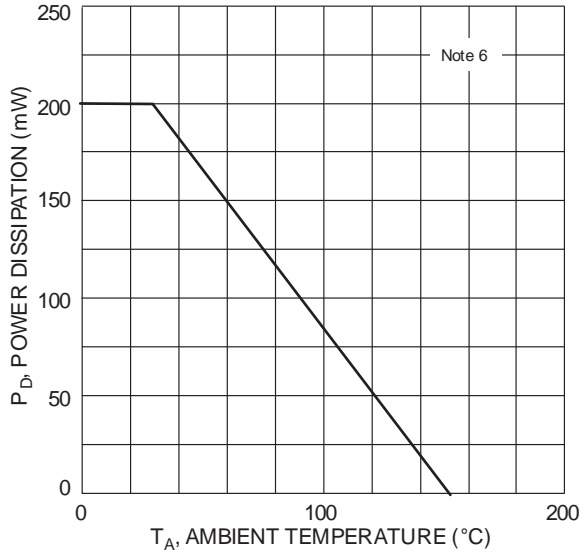


Fig. 1 Power Derating Curve

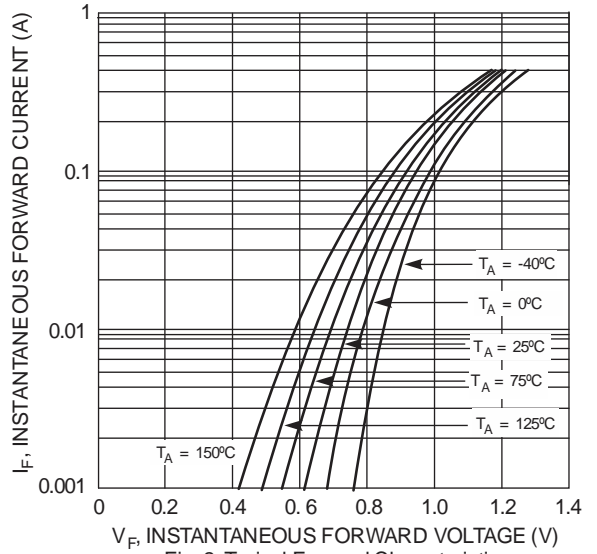


Fig. 2 Typical Forward Characteristics

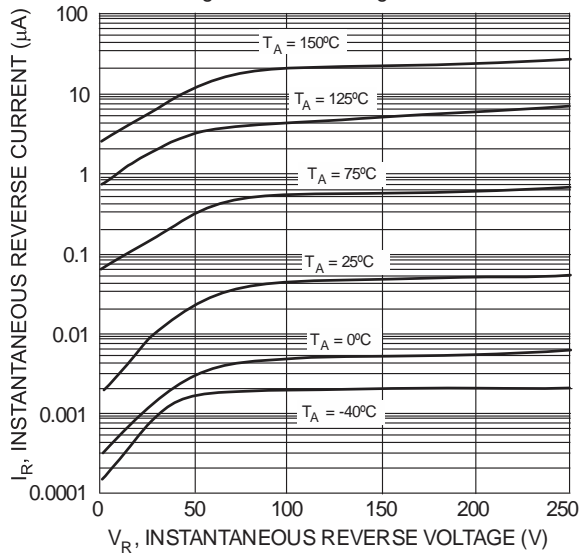


Fig. 3 Typical Reverse Characteristics

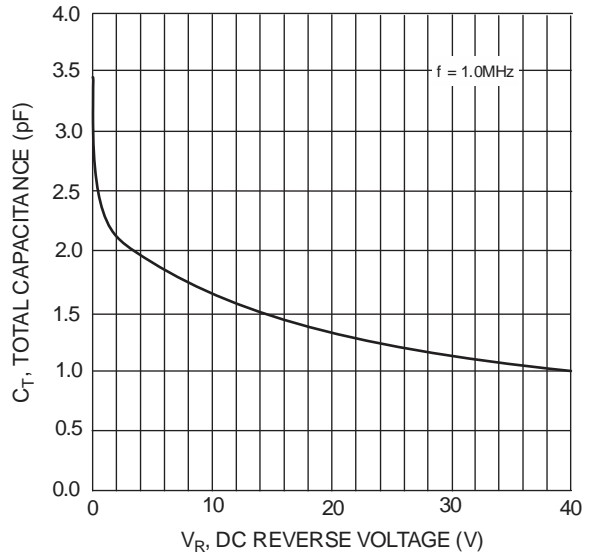
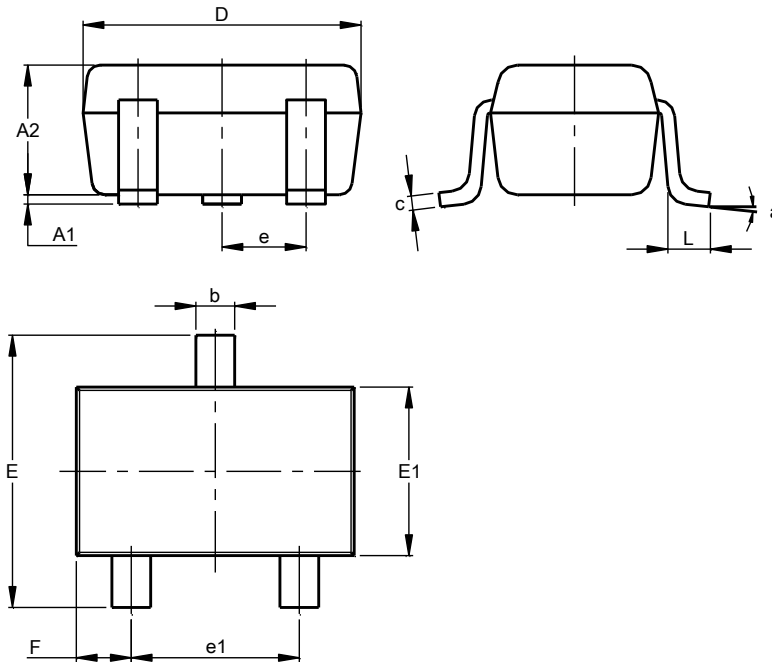


Fig. 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

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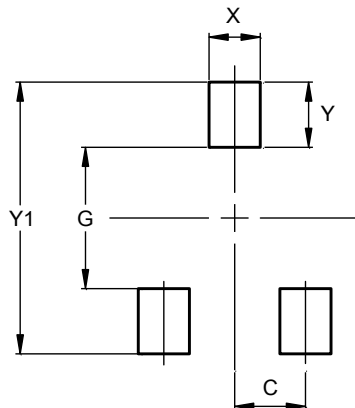


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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