

## **Excellent Integrated System Limited**

Stocking Distributor

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[Diodes Incorporated](#)  
[BAS21TM-7](#)

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## Features

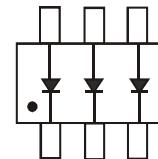
- Fast Switching Speed: max. 50ns
- Continuous Reverse Voltage: max. 200V
- Repetitive Peak Reverse Voltage: max. 250V
- Repetitive Peak Forward Current: max. 1A
- Small Surface Mount Package
- For General Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT26
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper Alloy leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (e3)
- Orientation: See Diagram
- Weight: 0.009 grams (approximate)



Top View



Top View  
Internal Schematic

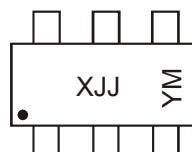
## Ordering Information (Notes 4)

Part Number	Compliance	Case	Packaging
BAS21TM-7	AEC-Q101	SOT26	3,000/Tape & Reel
BAS21TMQ-13	Automotive	SOT26	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](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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



XJJ = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Z = 2012)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Code	Y	Z	A	B	C	D	E	F	G	H		
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 (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	$V_{RM}$	250	V
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	250	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	177	V
Forward Continuous Current (Note 5)	$I_{FM}$	200	mA
Average Rectified Output Current (Note 5)	$I_o$	250	mA
Non-Repetitive Peak Forward Surge Current @ $t = 10\mu\text{s}$	$I_{FSM}$	10	A
@ $t = 100\mu\text{s}$		6	
@ $t = 10\text{ms}$		2	

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	300	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	°C

### Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	250	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	$V_F$	—	1.0 1.25	V	$I_F = 100\text{mA}$ $I_F = 200\text{mA}$
Reverse Current (Note 6)	$I_R$	—	100 100	nA μA	$V_R = 200\text{V}$ $V_R = 200\text{V}, T_J = +150^\circ\text{C}$
Total Capacitance	$C_T$	—	5	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	50	ns	$I_F = I_R = 30\text{mA}$ , $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$

Note:  
 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
 6. Short duration pulse test used to minimize self-heating effect.

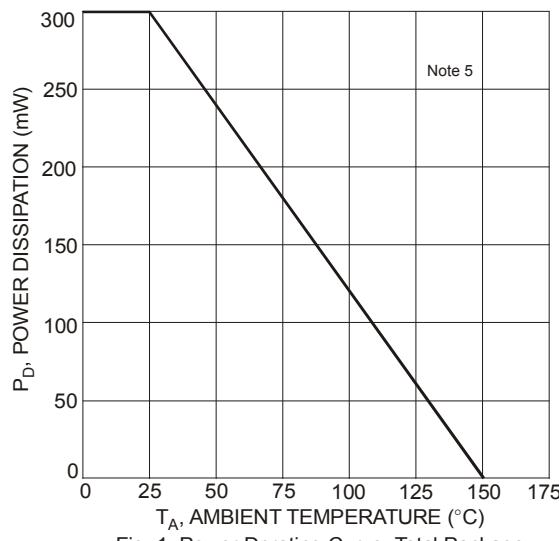


Fig. 1 Power Derating Curve, Total Package

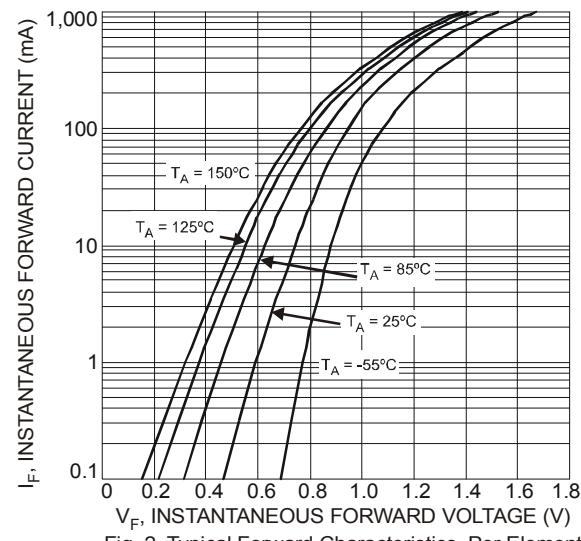


Fig. 2 Typical Forward Characteristics, Per Element



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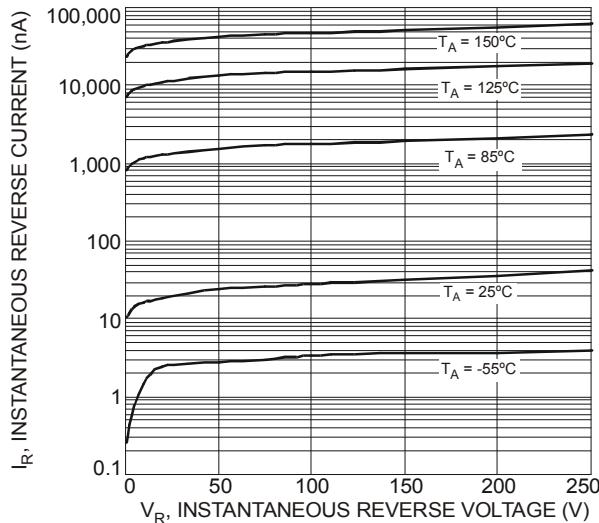


Fig. 3 Typical Reverse Characteristics, Per Element

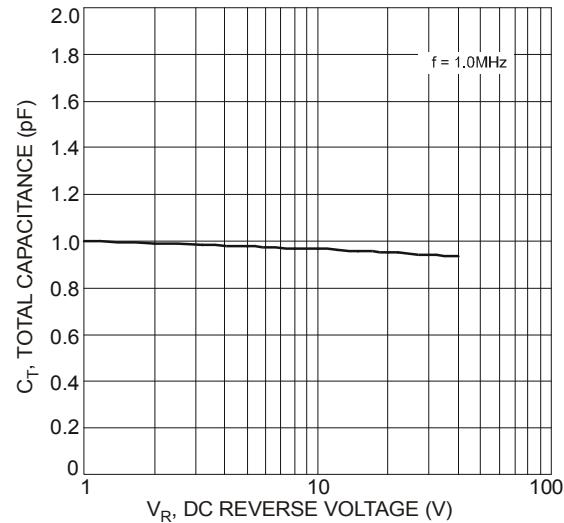
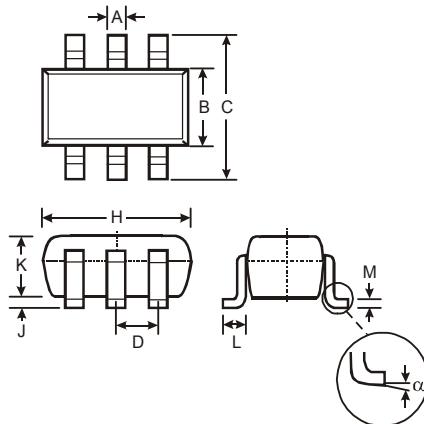


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Package Outline Dimensions

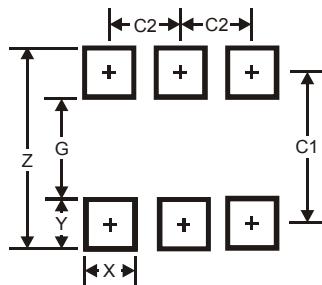
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
$\alpha$	0°	8°	—
All Dimensions in mm			

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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