NEW PRODUCT

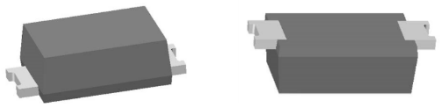
Features

- Flat Lead Package Design for Low Profile and High Power Dissipation
- **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: SOD123F (Type B)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Copper Alloy Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F (Type B)



Top View Bottom View

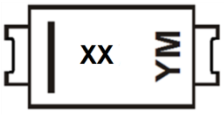
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
(Type Number)-7*	AEC-Q101	SOD123F (Type B)	3,000/Tape & Reel

*Add "-7" to the appropriate type number in Electrical Characteristics Table, example: 6.2V Zener = BZT52HC6V2WF-7.

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. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



XX = Product Type Marking Code
(See Electrical Characteristics Table)
YM = Date Code Marking
Y = Year (ex: C = 2015)
M = Month (ex: 9 = September)

Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021
Code	C	D	E	F	G	H	I

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

NEW PRODUCT

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Forward Voltage (Note 5)	@ I_F = 10mA	V_F	0.9	V
Forward Current		I_F	250	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	375	mW
Power Dissipation (Note 7)	P_D	830	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	330	°C/W
Thermal Resistance, Junction to Ambient Air (Note 7)	$R_{\theta JA}$	150	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Note: 5. Short duration pulse test used to minimize self-heating effect.
6. Device mounted on FR-4 PCB with minimum recommended pad layout, as shown in Diodes Incorporated's Suggested Pad Layout document, which can be found on our website at http://www.diodes.com/package-outlines.html.
7. Device mounted on FR-4 PCB with mounting pad for cathode 1cm^2.

NEW PRODUCT

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

Type Number	Marking Codes	Zener Voltage Range (Note 8)			Maximum Zener Impedance (Note 9)			Temperature Coefficient		Total Capacitance	Maximum Reverse Current (Note 8)	
		V_Z @ I_{ZT}		I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	T_C @ I_{ZT}		C_T @ f = 1MHz, V_R = 0V	I_R	@ V_R
		Min (V)	Max (V)	mA	Ω		mA	Min (mV/°C)	Max (mV/°C)	Max (pF)	μA	V
BZT52HC2V4WF	WX	2.2	2.6	5	85	400	1	−3.5	0.0	450	50	1
BZT52HC2V7WF	W1	2.5	2.9	5	83	500	1	−3.5	0.0	450	20	1
BZT52HC3V0WF	W2	2.8	3.2	5	95	500	1	−3.5	0.0	450	10	1
BZT52HC3V3WF	W3	3.1	3.5	5	95	500	1	−3.5	0.0	450	5	1
BZT52HC3V6WF	W4	3.4	3.8	5	95	500	1	−3.5	0.0	450	5	1
BZT52HC3V9WF	W5	3.7	4.1	5	95	500	1	−3.5	0.0	450	3	1
BZT52HC4V3WF	W6	4.0	4.6	5	95	500	1	−3.5	0.0	450	3	1
BZT52HC4V7WF	W7	4.4	5.0	5	78	500	1	−3.5	0.2	300	3	2
BZT52HC5V1WF	W8	4.8	5.4	5	60	480	1	−2.7	1.2	300	2	2
BZT52HC5V6WF	W9	5.2	6.0	5	40	400	1	−2.0	2.5	300	1	2
BZT52HC6V2WF	WA	5.8	6.6	5	10	150	1	0.4	3.7	200	3	4
BZT52HC6V8WF	WB	6.4	7.2	5	8	80	1	1.2	4.5	200	2	4
BZT52HC7V5WF	WC	7.0	7.9	5	10	80	1	2.5	5.3	150	1	5
BZT52HC8V2WF	WD	7.7	8.7	5	10	80	1	3.2	6.2	150	0.7	5
BZT52HC9V1WF	WE	8.5	9.6	5	10	100	1	3.8	7.0	150	0.5	6
BZT52HC10WF	WF	9.4	10.6	5	10	70	1	4.5	8.0	90	0.2	7
BZT52HC11WF	WG	10.4	11.6	5	10	70	1	5.4	9.0	85	0.1	8
BZT52HC12WF	WH	11.4	12.7	5	10	90	1	6.0	10.0	85	0.1	8
BZT52HC13WF	WI	12.4	14.1	5	10	110	1	7.0	11.0	80	0.1	8
BZT52HC15WF	WJ	13.8	15.6	5	15	110	1	9.2	13.0	75	0.05	10.5
BZT52HC16WF	WK	15.3	17.1	5	20	170	1	10.4	14.0	75	0.05	11.2
BZT52HC18WF	WL	16.8	19.1	5	20	170	1	12.4	16.0	70	0.05	12.6
BZT52HC20WF	WM	18.8	21.2	5	20	220	1	14.4	18.0	60	0.05	14.0
BZT52HC22WF	WN	20.8	23.3	5	25	220	1	16.4	-	60	0.05	15.4
BZT52HC24WF	WO	22.8	25.6	5	30	220	1	18.4	-	55	0.05	16.8
BZT52HC27WF	WP	25.1	28.9	2	40	250	1	21.4	-	50	0.05	18.9
BZT52HC30WF	WQ	28.0	32.0	2	40	250	1	24.4	-	50	0.05	21.0
BZT52HC33WF	WR	31.0	35.0	2	40	250	1	27.4	-	45	0.05	23.1
BZT52HC36WF	WS	34.0	38.0	2	60	250	1	30.4	-	45	0.05	25.2
BZT52HC39WF	WT	37.0	41.0	2	75	300	1	33.4	-	45	0.05	27.3
BZT52HC43WF	WU	40.0	46.0	2	80	325	1	37.6	-	40	0.05	30.1
BZT52HC47WF	WV	44.0	50.0	2	90	325	1	42.0	-	40	0.05	32.9

Notes: 8. Short duration pulse test used to minimize self-heating effect.
9. f = 1kHz.

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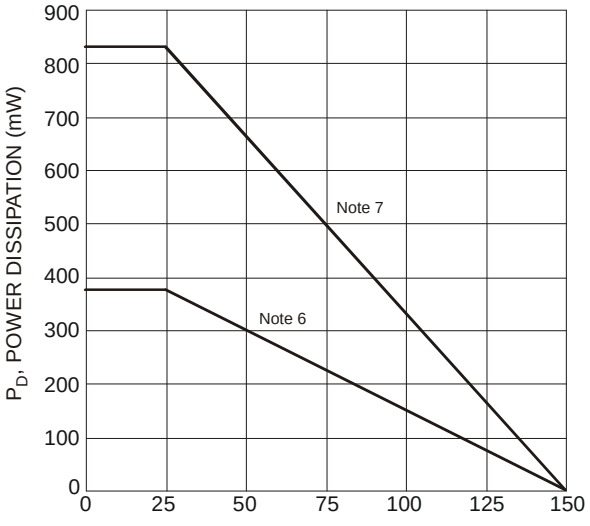


Figure 1 Power Derating Curve

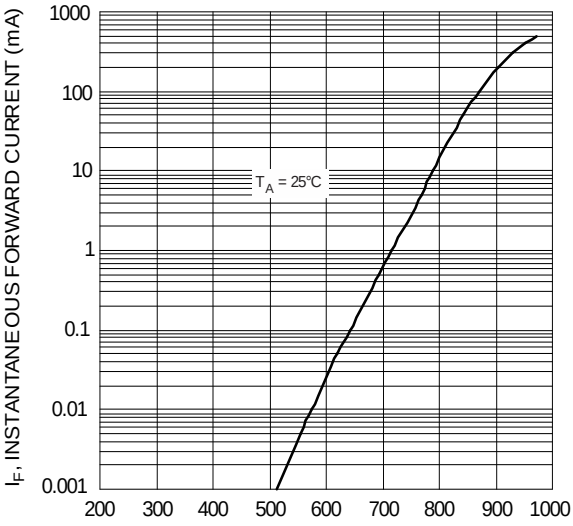


Figure 2 Typical Forward Characteristics

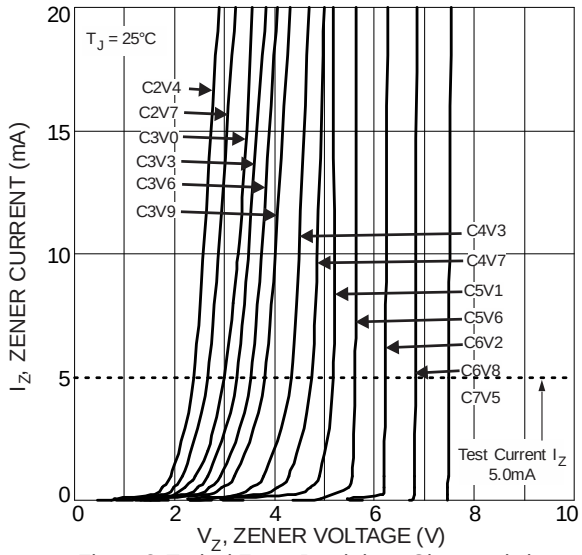


Figure 3 Typical Zener Breakdown Characteristics

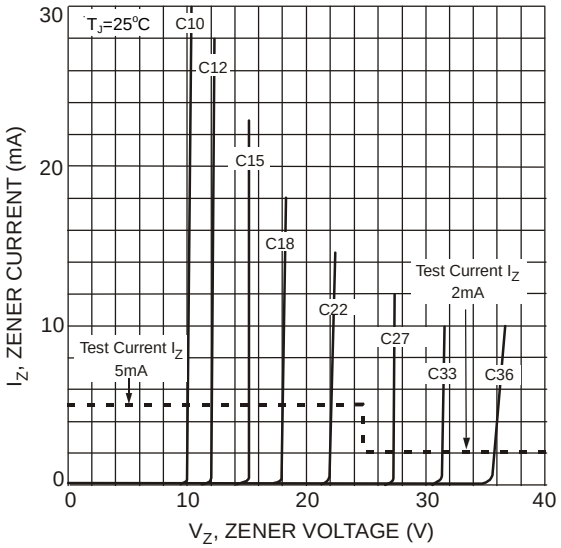
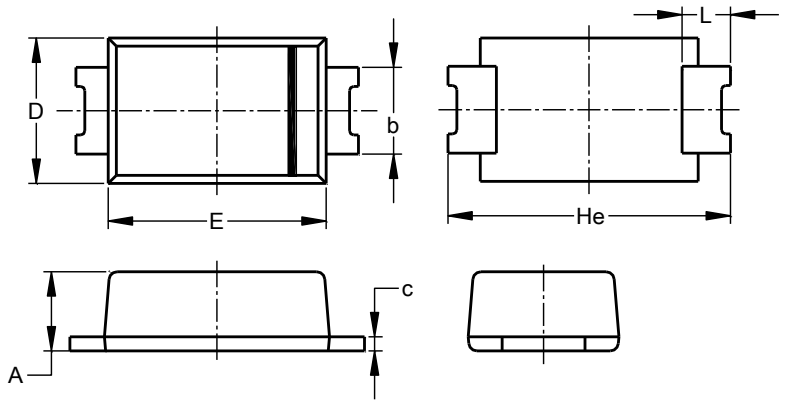


Figure 4 Typical Zener Breakdown Characteristics

Package Outline Dimensions

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



SOD123F (Type B)			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	-
All Dimensions in mm			

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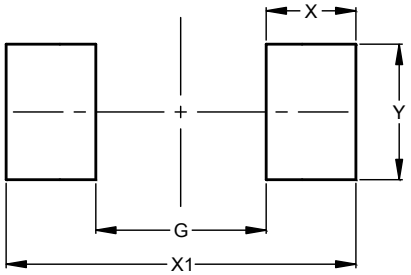
Suggested Pad Layout

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



Dimensions	Value (in mm)
G	1.90
X	1.00
X1	3.90
Y	1.50