1.0W SURFACE MOUNT POWER ZENER DIODE

PowerDI®123

Features

- 1W Power Dissipation on FR-4 PCB
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: PowerDI®123
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.01 grams (approximate)

Top View

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Forward Voltage	@ I_F = 200mA	V_F	1.2	V

Thermal Characteristics

Characteristic	Symbol	Typ	Value	Unit
Power Dissipation (Note 1)	P_D	—	1.0	W
Thermal Resistance Junction to Ambient Air (Note 1)	$R_{\theta JA}$	110	—	°C/W
Thermal Resistance Junction to Soldering Point (Note 3)	$R_{\theta JS}$	—	9	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	—	-55 to +150	°C

Notes:
1. Device mounted on 1" x 1", FR-4 PCB; 2 oz. Cu pad layout as shown on Diodes Inc. suggested pad layout document AP02001.pdf.
2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes.*
3. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Type Number	Marking Codes	Zener Voltage Range (Note 4)				Zener Impedance		Maximum Reverse Current (Note 4)		Typical Temperature Coefficient @ I_{ZTC} %/°C	
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}		I_R	@ V_R		
		Nom (V)	Min (V)	Max (V)	mA	Typ (Ω)	Max (Ω)	μA	V	Min	Max
DFLZ5V1	FHK	5.1	4.8	5.4	100	2	6	2.5	1	-0.08	-0.2
DFLZ5V6	FHL	5.6	5.2	6.0	100	1	4	10	2	-0.04	0.04
DFLZ6V2	FHN	6.2	5.8	6.6	100	1	3	5	2	-0.01	0.06
DFLZ6V8	FHO	6.8	6.4	7.2	100	1	3	5	3	0	0.07
DFLZ7V5	FHQ	7.5	7.0	7.9	100	1	2	5	3	0	0.07
DFLZ8V2	FHR	8.2	7.7	8.7	100	1	2	5	3	0.03	0.08
DFLZ9V1	FHT	9.1	8.5	9.6	50	1	4	5	5	0.03	0.08
DFLZ10	FHU	10	9.4	10.6	50	1	4	5	7.5	0.05	0.09
DFLZ11	FHV	11	10.4	11.6	50	1	7	4	8.2	0.05	0.10
DFLZ12	FHW	12	11.4	12.7	50	1	7	3	9.1	0.05	0.10
DFLZ13	FHX	13	12.4	14.1	50	1	10	2	10	0.05	0.10
DFLZ15	FHZ	15	13.8	15.6	50	1	10	1	11	0.05	0.10
DFLZ16	FJA	16	15.3	17.1	25	1	15	1	12	0.06	0.11
DFLZ18	FJF	18	16.8	19.1	25	2	15	1	13	0.06	0.11
DFLZ20	FJG	20	18.8	21.2	25	3	15	1	15	0.06	0.11
DFLZ22	FJK	22	20.8	23.3	25	3	15	1	16	0.06	0.11
DFLZ24	FJL	24	22.8	25.6	25	2	15	1	18	0.06	0.11
DFLZ27	FJN	27	25.1	28.9	25	3	15	1	20	0.06	0.11
DFLZ30	FJQ	30	28	32	25	8	15	1	22	0.06	0.11
DFLZ33	FJR	33	31	35	25	5	15	1	24	0.06	0.11
DFLZ36	FJS	36	34	38	10	5	40	1	27	0.06	0.11
DFLZ39	FJT	39	37	41	10	5	40	1	30	0.06	0.11

Notes: 4. Short duration pulse test used to minimize self-heating effect.

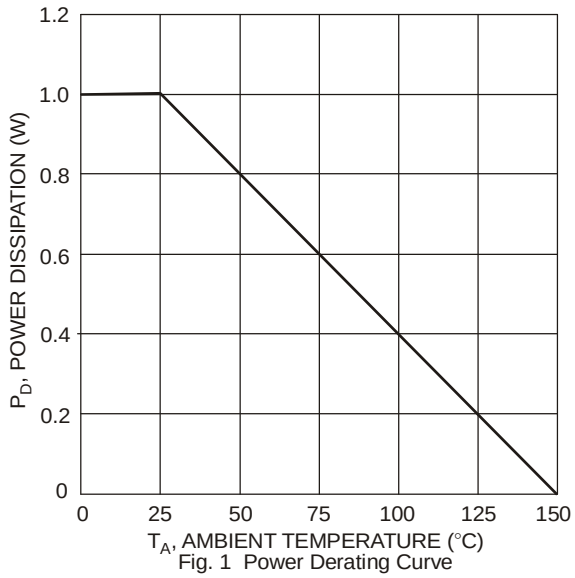


Fig. 1 Power Derating Curve

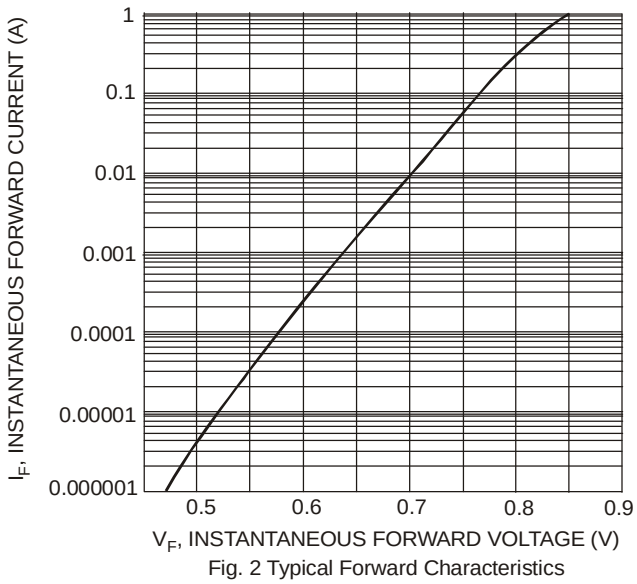


Fig. 2 Typical Forward Characteristics

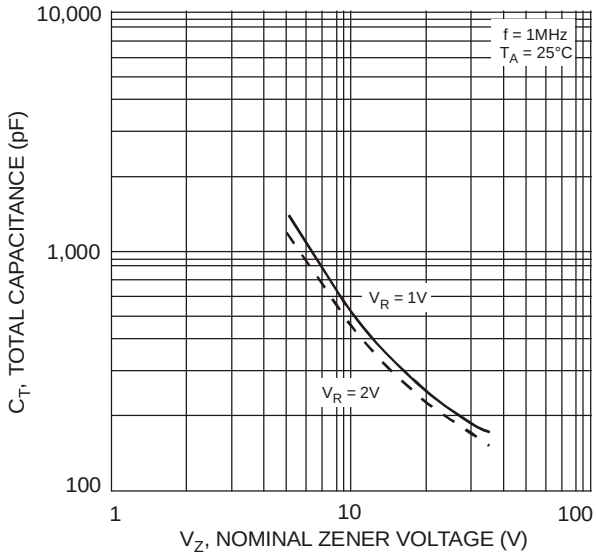


Fig. 3 Typical Total Capacitance vs. Nominal Zener Voltage

Ordering Information (Note 5)

Device	Packaging	Shipping
(Type Number)-7*	PowerDI®123	3000/Tape & Reel

* Add "-7" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = DFLZ6V2-7

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

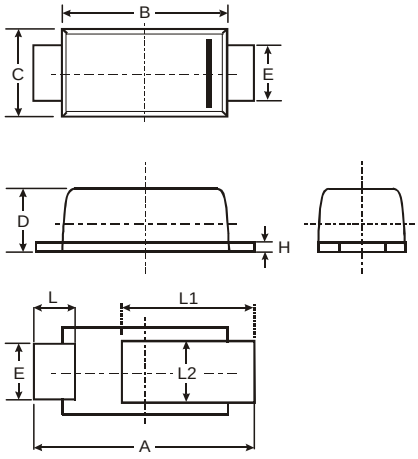
Fxx = Product Type Marking Code
(See Electrical Characteristics Table)
YM = Date Code Marking
Y = Year (ex: R = 2004)
M = Month (ex: 9 = September)

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	R	S	T	U	V	W	X	Y	Z

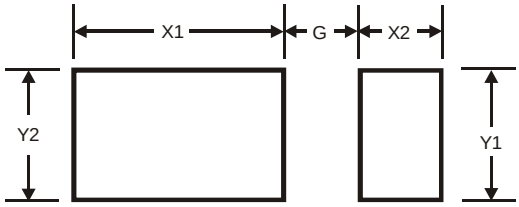
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



PowerDI®123			
Dim	Min	Max	Typ
A	3.50	3.90	3.70
B	2.60	3.00	2.80
C	1.63	1.93	1.78
D	0.93	1.00	0.98
E	0.85	1.25	1.00
H	0.15	0.25	0.20
L	0.55	0.75	0.65
L1	1.80	2.20	2.00
L2	0.95	1.25	1.10
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
G	1.0
X1	2.2
X2	0.9
Y1	1.4
Y2	1.4