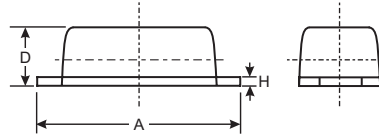


Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- **Lead Free Finish, RoHS Compliant (Note 4)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

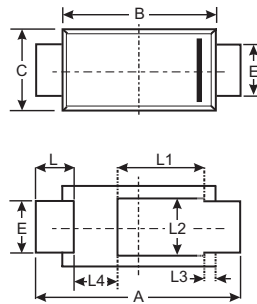


PowerDI™123			
Dim	Min	Max	Typ
A	3.65	3.75	3.70
B	2.775	2.825	2.80
C	1.750	1.800	1.775
D	0.955	1.000	0.98
E	0.95	1.05	1.00
H	0.15	0.25	0.20
L	0.60	0.70	0.65
L1	—	—	1.36
L2	—	—	1.10
L3	—	—	0.20
L4	0.95	1.25	1.05

All Dimensions in mm

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-020C
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Marking & Type Code Information: See Page 3
- Weight: 0.096 grams (approx.)
- Ordering Information: See Last Page



Maximum Ratings @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	40	V
RMS Reverse Voltage	V _{R(RMS)}	28	V
Average Forward Current @ T _T = 120°C	I _{F(AV)}	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	50	A
Operating Temperature Range	T _j	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Thermal Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P _D	1.67	W
Power Dissipation (Note 2)	P _D	556	mW
Thermal Resistance Junction to Ambient (Note 1)	R _{θJA}	60	°C/W
Thermal Resistance Junction to Ambient (Note 2)	R _{θJA}	180	°C/W
Thermal Resistance Junction to Soldering (Note 3)	R _{θJS}	10	°C/W

- Notes:
1. Part mounted on 50.8mm X 50.8mm GETEK board with 25.4mm X 25.4mm copper pad, 25% anode, 75% cathode.
 2. Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads.
 3. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB cathode tab solder junction.
 4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	40	—	—	V	$I_R = 500\mu\text{A}$
Forward Voltage (Note 5)	V_F	—	—	0.36	V	$I_F = 0.1\text{A}, T_J = 25^\circ\text{C}$
		—	—	0.30		$I_F = 0.1\text{A}, T_J = 85^\circ\text{C}$
		—	—	0.55		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$
		—	—	0.515		$I_F = 1.0\text{A}, T_J = 85^\circ\text{C}$
		—	—	0.85		$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$
		—	—	0.88		$I_F = 3.0\text{A}, T_J = 85^\circ\text{C}$
Leakage Current (Note 5)	I_R	—	—	0.5	mA	$V_R = 40\text{V}, T_J = 25^\circ\text{C}$
		—	—	25		$V_R = 40\text{V}, T_J = 85^\circ\text{C}$
		—	—	0.15		$V_R = 20\text{V}, T_J = 25^\circ\text{C}$
		—	—	18		$V_R = 20\text{V}, T_J = 85^\circ\text{C}$
Total Capacitance	C_T	—	55	—	pF	$V_R = 10\text{V}, f = 1.0\text{MHz}$

Notes: 5. Short duration pulse test to minimize self-heating effect.

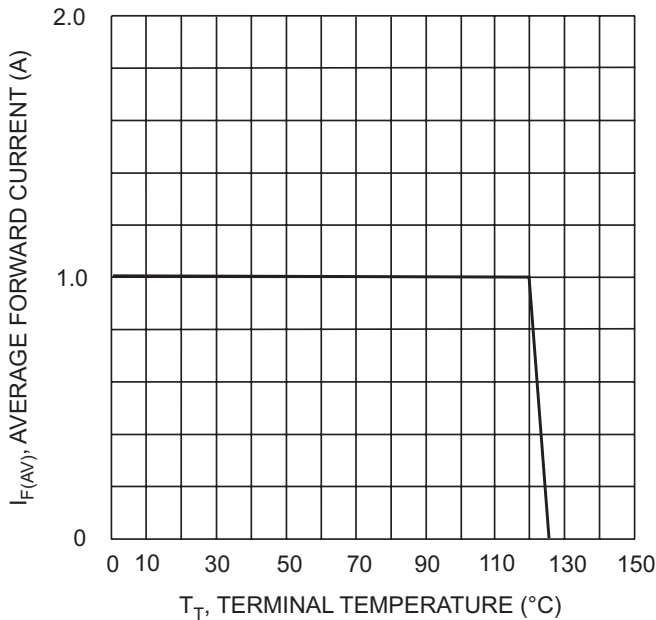


Fig. 1, Forward Current Derating Curve

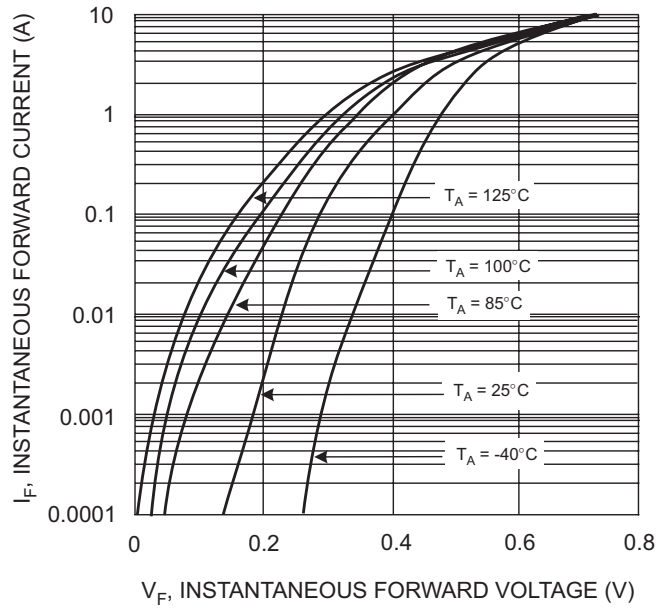


Fig. 2, Typical Forward Characteristics

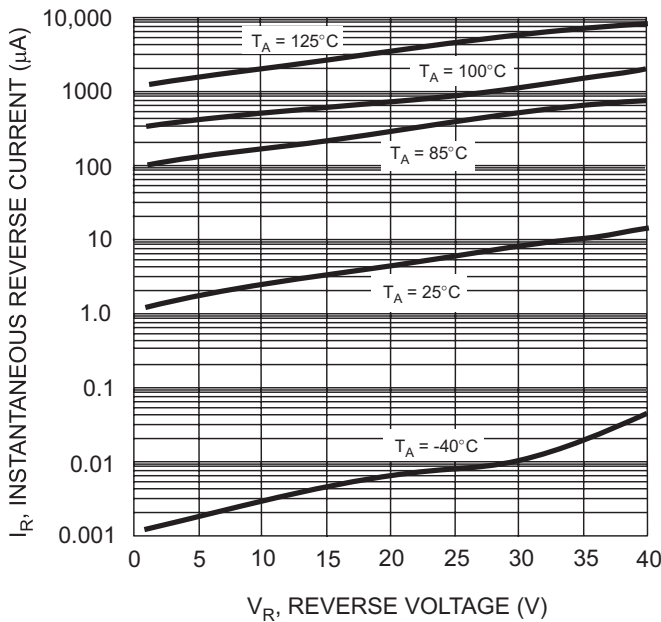


Fig. 3, Typical Pulsed Reverse Characteristics

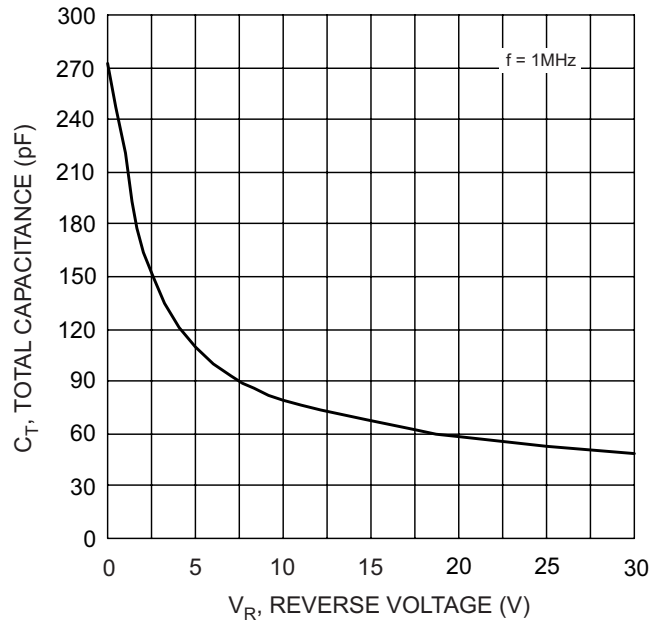


Fig. 4, Typical Total Capacitance vs Reverse Voltage

Ordering Information (Note 6)

Device	Packaging	Shipping
DFLS140L-7	PowerDI™ 123	3000/Tape & Reel

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



F06 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: P = 2003)
 M = Month (ex: 9 = September)

Date Code Key

Year	2003	2004	2005	2006	2007	2008	2009
Code	P	R	S	T	U	V	W

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