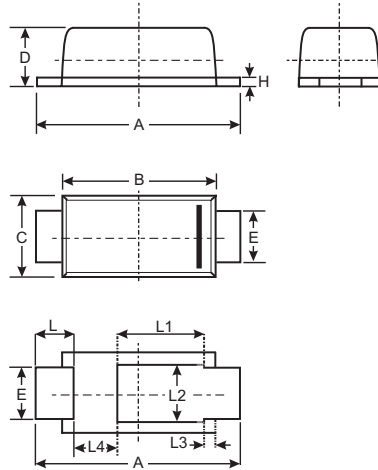


### Features

- 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**

### 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
- Marking & Type Code Information: See Page 3
- Weight: 0.096 grams (approx.)
- Ordering Information: See Last Page



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**

### Maximum Ratings @ T<sub>A</sub> = 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 <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Forward Current @ T <sub>T</sub> = 120°C	I <sub>F(AV)</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50	A
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

### Thermal Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

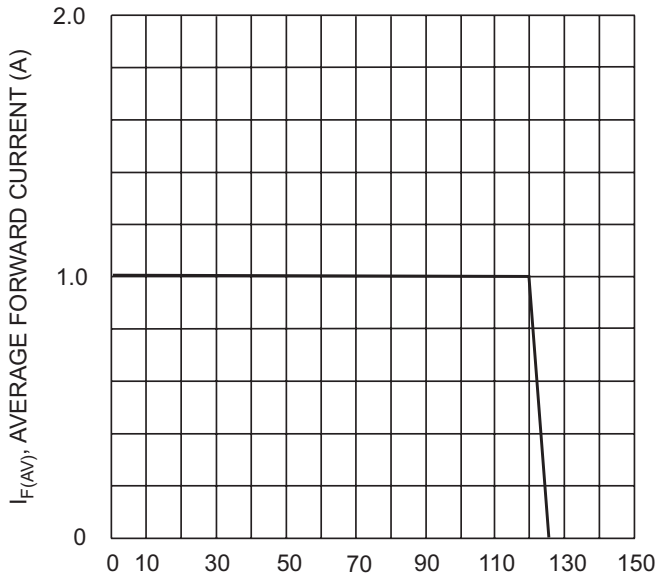
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P <sub>D</sub>	1.67	W
Power Dissipation (Note 2)	P <sub>D</sub>	556	mW
Thermal Resistance Junction to Ambient (Note 1)	R <sub>θJA</sub>	60	°C/W
Thermal Resistance Junction to Ambient (Note 2)	R <sub>θJA</sub>	180	°C/W
Thermal Resistance Junction to Soldering (Note 3)	R <sub>θJS</sub>	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<sub>θJS</sub> 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*.

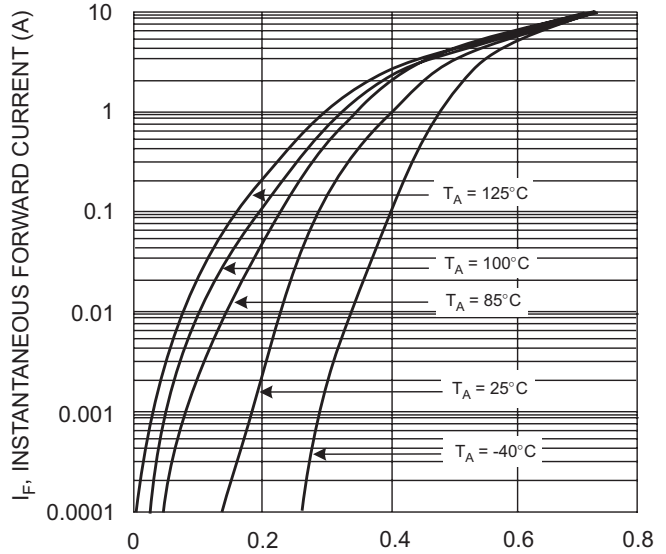
**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

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 0.30 0.55 0.515 0.85 0.88	V	$I_F = 0.1\text{A}, T_J = 25^\circ\text{C}$ $I_F = 0.1\text{A}, T_J = 85^\circ\text{C}$ $I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$ $I_F = 1.0\text{A}, T_J = 85^\circ\text{C}$ $I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$ $I_F = 3.0\text{A}, T_J = 85^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	—	—	0.5 25 0.15 18	mA	$V_R = 40\text{V}, T_J = 25^\circ\text{C}$ $V_R = 40\text{V}, T_J = 85^\circ\text{C}$ $V_R = 20\text{V}, T_J = 25^\circ\text{C}$ $V_R = 20\text{V}, T_J = 85^\circ\text{C}$
Total Capacitance	$C_T$	—	55	—	pF	$V_R = 10\text{V}, f = 1.0\text{MHz}$

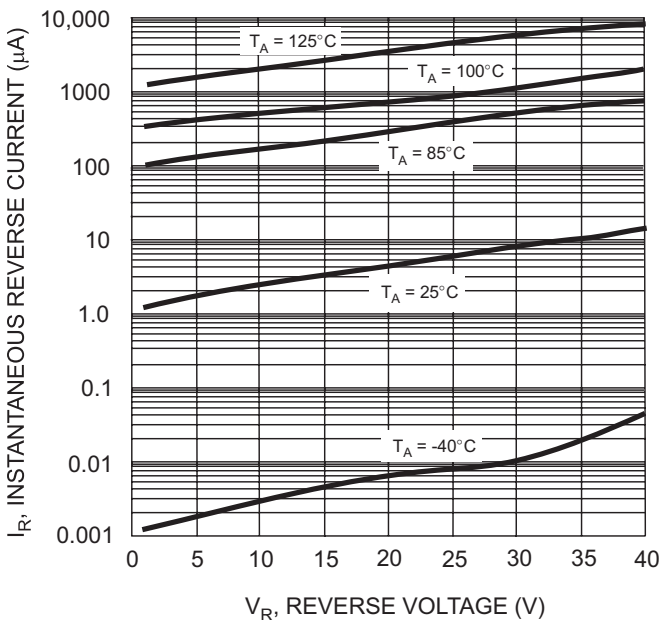
Notes: 5. Short duration pulse test to minimize self-heating effect.



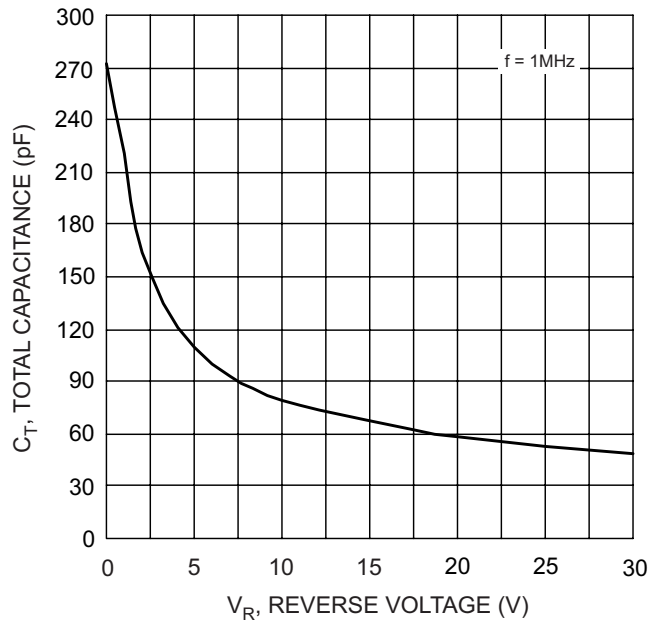
$T_T$ , TERMINAL TEMPERATURE ( $^\circ\text{C}$ )  
Fig. 1, Forward Current Derating Curve



$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics



$V_R$ , REVERSE VOLTAGE (V)  
Fig. 3, Typical Pulsed Reverse Characteristics



$V_R$ , REVERSE VOLTAGE (V)  
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