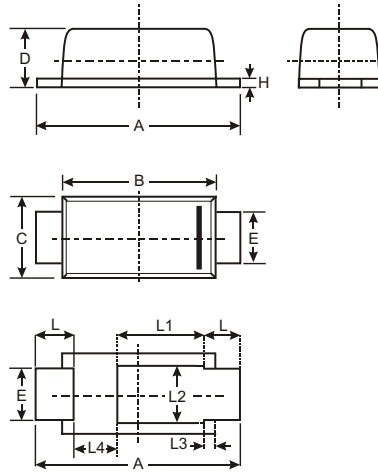


### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop

### Mechanical Data

- Case: PowerDI™123, Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Polarity: Cathode Band
- Terminals: Matte Tin Finish (Lead Free), Solderable per MIL-STD-202, Method 208
- Marking: Date Code & Type Code, See Page 3
- Type Code: F04
- Weight: 0.01 grams (approx.)
- Ordering Information: See Page 3



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	0.45	0.85	0.65
L1	—	—	1.35
L2	—	—	1.10
L3	—	—	0.20
L4	0.90	1.30	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> = 119°C	I <sub>F(AV)</sub>	1.1	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	40	A
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
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 4)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 20μA
Forward Voltage (Note 4)	V <sub>F</sub>	—	0.45 0.53	0.51 —	V	I <sub>F</sub> = 0.5A I <sub>F</sub> = 1.1A
Leakage Current (Note 4)	I <sub>R</sub>	—	—	20 6.0	μA mA	V <sub>R</sub> = 40V, T <sub>A</sub> = 25°C V <sub>R</sub> = 40V, T <sub>A</sub> = 100°C
Total Capacitance	C <sub>T</sub>	—	28	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes:
1. Part mounted on 2"x2" GETEK board with 1"x1" copper pad, 25% anode, 75% cathode.
  2. 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>.
  3. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  4. Short duration pulse test to minimize self-heating effect.

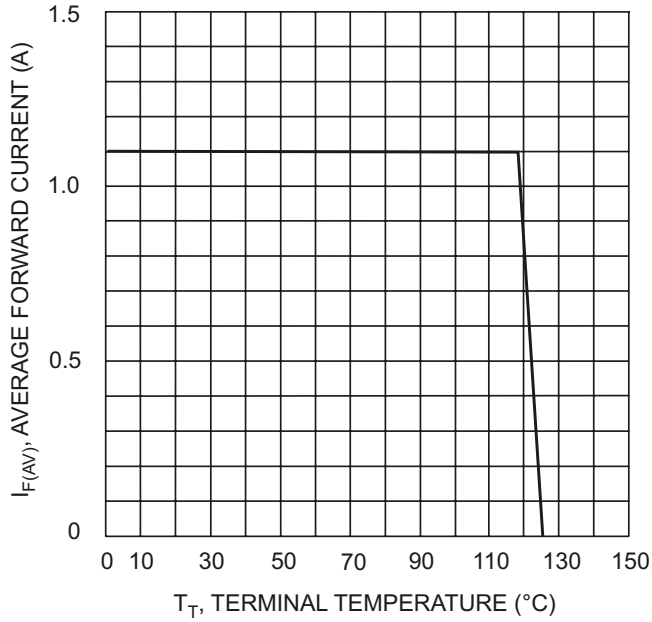


Fig. 1, Forward Current Derating Curve

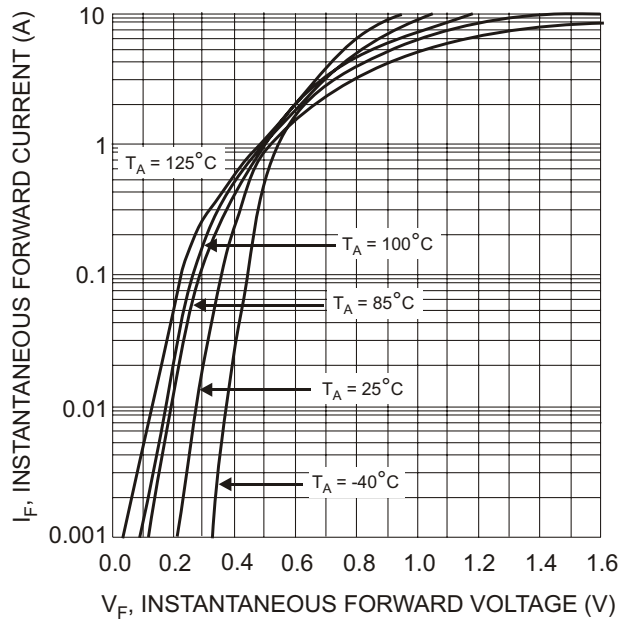


Fig. 2, Typical Forward Characteristics

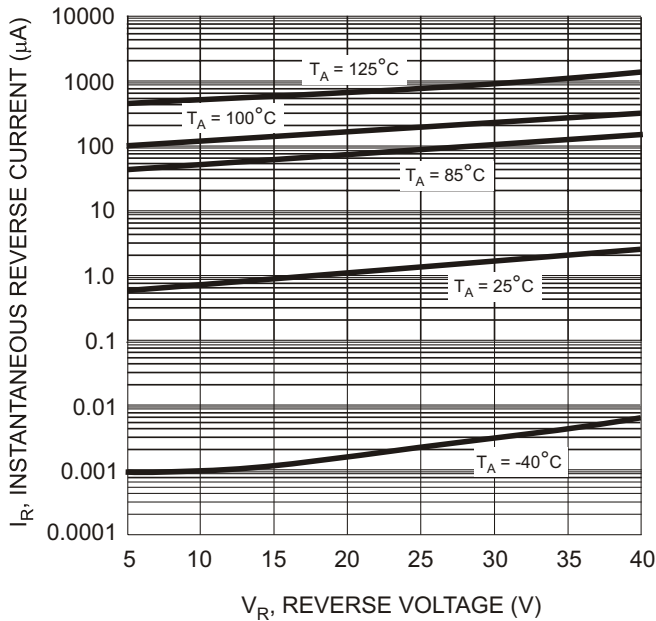


Fig. 3, Typical Pulsed Reverse Characteristics

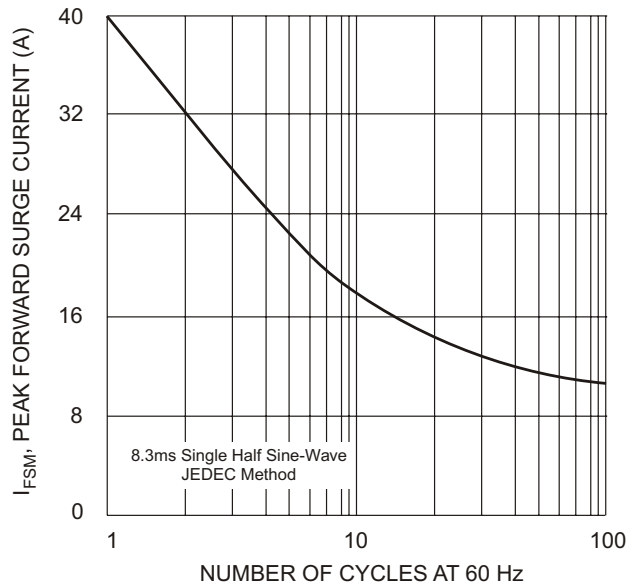


Fig. 4, Maximum Non-Repetitive Peak Forward Surge Current

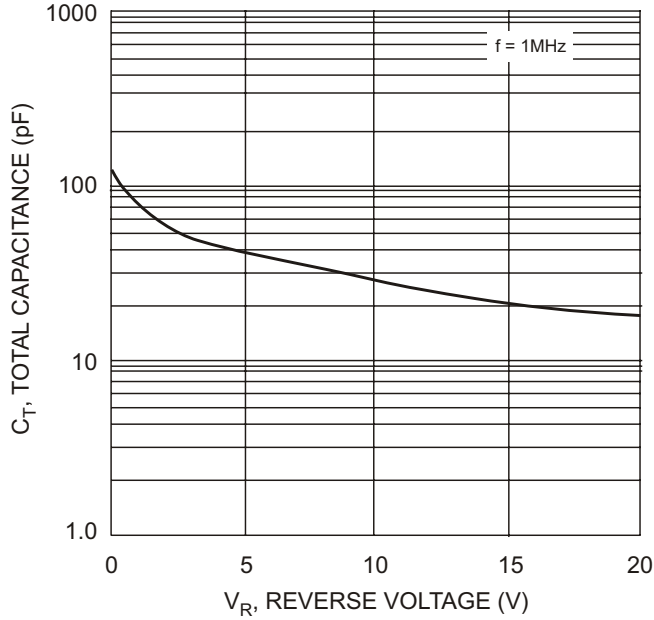


Fig. 5, Typical Total Capacitance vs Reverse Voltage

**Ordering Information** (Note 5)

Device	Packaging	Shipping
DFLS140-7	PowerDI™ 123	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



F04 = 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