

DESCRIPTION

PLED Series open LED protectors provide a switching electronic shunt path when an LED in an LED string fails as an open circuit. This ensures that the remaining string of LEDs will continue to function if a single LED does not.

PLED Series devices were designed to enable higher reliability in outdoor LED lighting applications such as street lighting, outdoor signage, aircraft runway lighting, roadside warning lights and other applications.

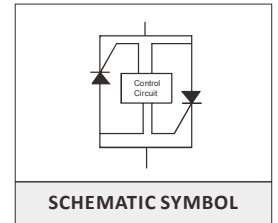
Compatible with one, two and three watt LEDs that have a nominal 3V forward characteristic, PLED Series devices are available in three surface mount packages, the SOD-123FL, the DO-214AA and the DO-214AC.

FEATURES

- > Fast switching
- > Automatically resets after power cycle
- > Available in low profile, small footprint DO214AA, DO214AC and SOD-123FL packages
- > Compatible with industrial lighting environments
- > Compatible with PWM frequencies up to 30 kHz
- > RoHS compliant and halogen-free



SOD-123FL/DO-214AA/AC



SCHEMATIC SYMBOL

ELECTRICAL CHARACTERISTICS @ 25°C UNLESS OTHERWISE SPECIFIED

PART NUMBER	DEVICE MARKING CODE	V _{BR} BREAKDOWN (V)		V _{DRM} BREAKDOWN (V)	I _H (mA)	I _S (mA)	I _T @V _T (A)	V _T @I _T = 1A (V)	Critical rate of rise dv/dt (V/us)
		Min.	Max.	Min.	Min.	Max.	Max.	Max.	Max.
PLED06F	PL6	6.0	16.0	6.0	5.0	100.0	1.0	1.2	250.0
PLED06T	PL6	6.0	16.0	6.0	5.0	100.0	1.0	1.2	250.0
PLED06S	PL6	6.0	16.0	6.0	5.0	100.0	1.0	1.2	250.0
PLED09F	PL9	9.0	18.0	9.0	5.0	100.0	1.0	1.2	250.0
PLED09T	PL9	9.0	18.0	9.0	5.0	100.0	1.0	1.2	250.0
PLED09S	PL9	9.0	18.0	9.0	5.0	100.0	1.0	1.2	250.0
PLED13F	PL13	13.0	26.0	13.0	5.0	100.0	1.0	1.2	250.0
PLED13T	PL13	13.0	26.0	13.0	5.0	100.0	1.0	1.2	250.0
PLED13S	PL13	13.0	26.0	13.0	5.0	100.0	1.0	1.2	250.0
PLED18F	PL18	18.0	33.0	18.0	5.0	100.0	1.0	1.2	250.0
PLED18T	PL18	18.0	33.0	18.0	5.0	100.0	1.0	1.2	250.0
PLED18S	PL18	18.0	33.0	18.0	5.0	100.0	1.0	1.2	250.0

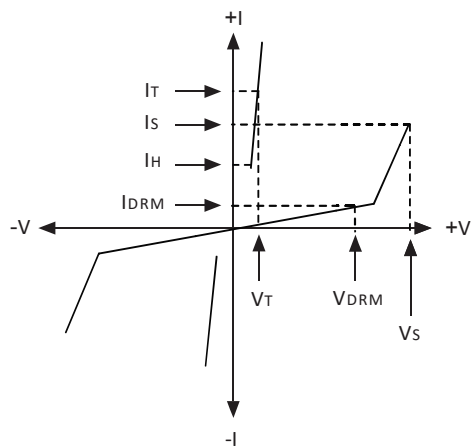
Notes: F=SOD-123FL Package; T=DO-214AC Package; S=DO-214AA Package.

THERMAL CONSIDERATIONS

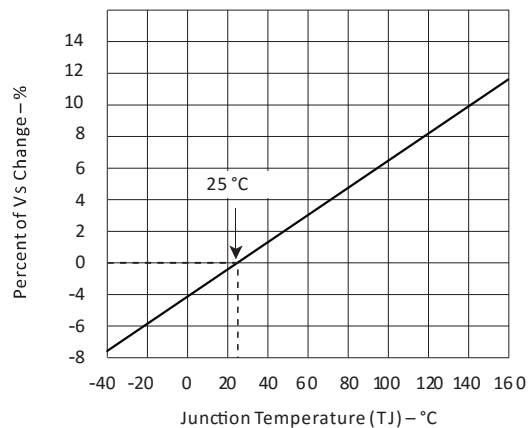
Symbol	Parameter	Value		Unit
T _J	Operating Junction Temperature	-40 to +150		°C
T _S	Storage Temperature Range	-40 to +150		°C
R _{θJA}	Junction to Ambient on printed circuit	SOD123-FL	220	°C/W
		DO-214AC	120	
		DO-214AA	90	



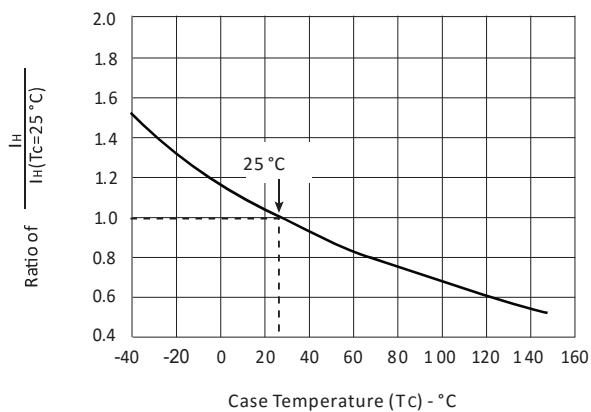
TYPICAL DEVICE CHARACTERISTICS



V-I Characteristics



Normalized V_S Change vs. Junction Temperature



Normalized DC Holding Current vs. Case Temperature

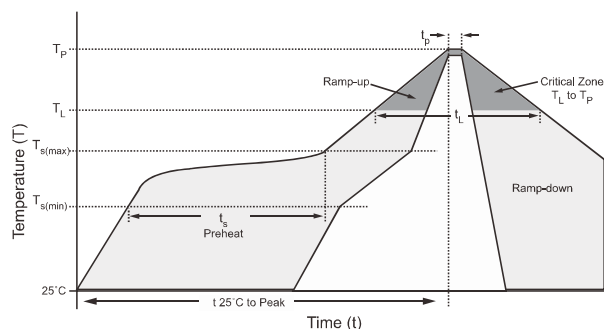


ENVIRONMENTAL CHARACTERISTICS

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature:150±3°C,Bias=80%V _{DRM} ;Time:168H
High Temperature Life Test	Temperature:150°C;Time:168H
High-Low Temperature Cycle Test	Temperature:From -40°C to 150°C;Dwell Time:30min,10-100 Cycles
High Temperature&High Humidity Test	Temperature:85°C .Humidity:85%; Time:168H
Pressure Cooker Test	Temperature:121°C,2 atm.Humidity:100%; Time:24H To 168H
Resistance Of Soldering Heat	Temperature:260±5°C;Time Of Dip Soldering:10s,3 Times

REFLOW PROFILE

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max)to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (tl)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Do not exceed		260°C



SOD-123FL PACKAGE DIMENSION

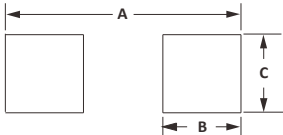
DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.90	0.95	1.00	0.035	0.037	0.039
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.70	0.90	1.10	0.028	0.035	0.043
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.50	1.65	1.80	0.059	0.065	0.071
E	2.50	2.70	2.90	0.098	0.106	0.114
L	0.55	0.75	0.95	0.022	0.030	0.037
H _E	3.40	3.60	3.80	0.134	0.142	0.150

NOTES:

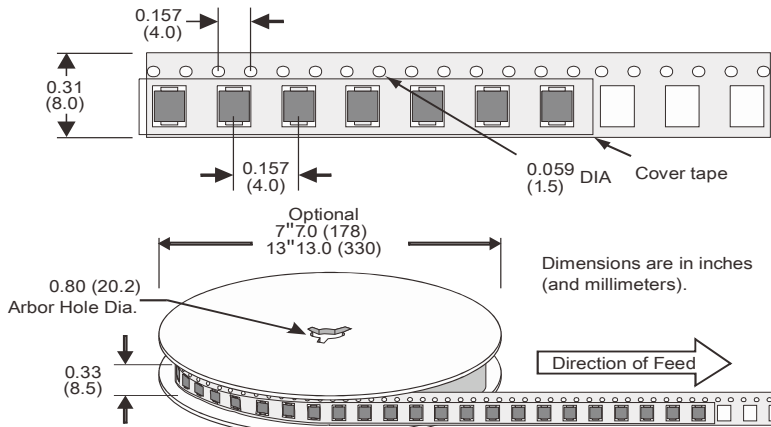
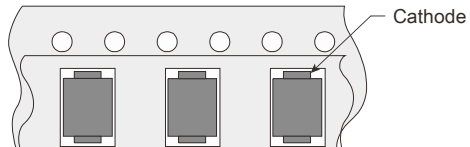
- Dimensions are exclusive of mold flash and metal burrs
- Cathode Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS	INCHES
A	4.19	0.165
B	0.91	0.036
C	1.22	0.048



TAPE AND REEL SPECIFICATION

 <p>0.157 (4.0)</p> <p>0.31 (8.0)</p> <p>0.157 (4.0)</p> <p>0.059 (1.5) DIA</p> <p>Cover tape</p> <p>Optional 7" 7.0 (178) 13" 13.0 (330)</p> <p>0.80 (20.2) Arbor Hole Dia.</p> <p>0.33 (8.5)</p> <p>Dimensions are in inches (and millimeters).</p> <p>Direction of Feed</p>	 <p>Cathode</p>
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DO-214AC PACKAGE DIMENSION

Item	Millimeters		Inches	
	Min.	Max	Min.	Max.
A	1.23	1.63	0.048	0.064
B	4.10	4.55	0.161	0.179
C	2.60	2.80	0.102	0.110
D	2.15	2.35	0.085	0.093
E	0.75	1.51	0.030	0.059
F	0.02	0.20	0.001	0.008
G	4.87	5.22	0.192	0.206
H	0.15	0.30	0.006	0.012

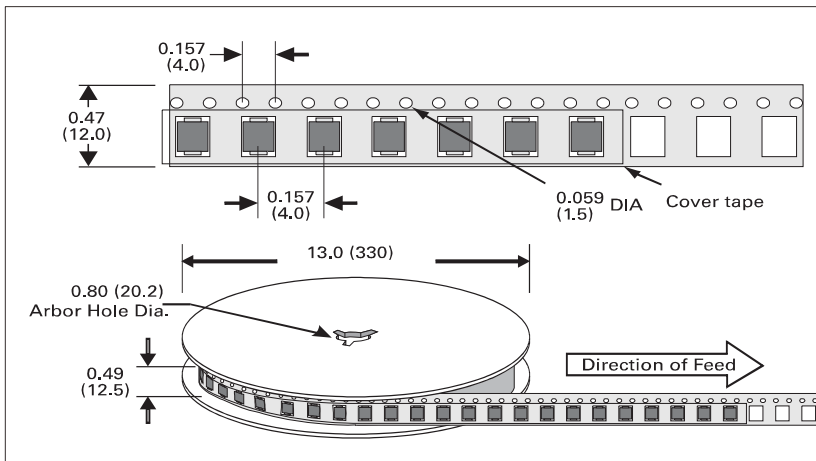
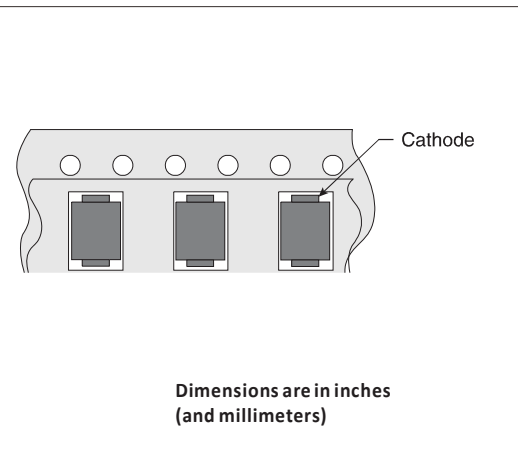
NOTES:

1. Dimensions are exclusive of mold flash and metal burrs
2. Cathode Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSION

Item	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.63	-	0.064	-
B	1.45	-	0.057	-
C	-	2.28	-	0.090
D	1.45	-	0.057	-
E	5.28 REF		0.208 REF	

TAPE AND REEL SPECIFICATION

	
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Dimensions are in inches (and millimeters)



DO-214AA PACKAGE DIMENSION

SMB PACKAGE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.96	2.20	0.077	0.087
B	4.35	4.85	0.171	0.191
C	3.30	3.94	0.130	0.155
D	2.20	2.50	0.087	0.098
E	0.76	1.52	0.030	0.060
F	0.02	0.20	0.001	0.008
G	5.08	5.59	0.200	0.220
H	0.15	0.30	0.006	0.012

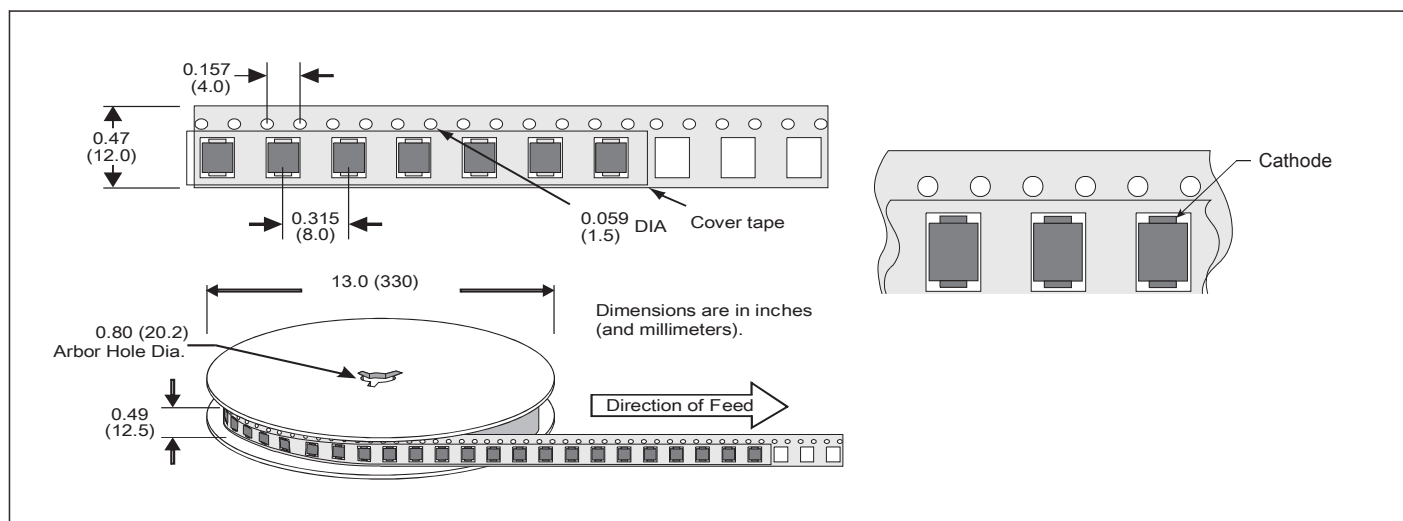
NOTES:

1. Dimensions are exclusive of mold flash and metal burrs
2. Polarity Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

RECOMMENDED PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.20	-	0.087	-
B	1.45	-	0.057	-
C	-	2.55	-	0.100
D	1.45	-	0.057	-
E	5.60 REF		0.220 REF	

TAPE AND REEL SPECIFICATION



ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
PLED06F/13F/18F	SOD-123FL	3000PCS	7"
PLED06T/13T/18T	DO-214AC	3000PCS	13"
PLED06S/13S/18S	DO-214AA	3000PCS	13"

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