



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



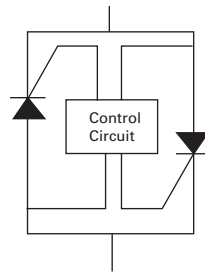
**PLED Ultra Low Holding Current Series**



**Agency Approvals**

Agency	Agency File Number
	E133083

**Schematic Symbol**



**Description**

This PLED ultra-low holding current series exhibits a low holding current parameter that makes it compatible with LED lighting strings. The series provide a switching electronic characteristics for an fluorescent tube replacement by an LED string. It helps to make the Fluorescent ballast and LED string compatible with each other. This ensures the ballast will be able to activate the LED string; especially for those ballast that need a high voltage output detection during ignition. The PLED ultra-low  $I_H$  makes the LED driver widely used in the output of fluorescent tubes a compatible direct replacement for indoor and outdoor LED lighting strings.

**Features & Benefits**

- Fast switching
- Automatically resets after power cycle
- Available in low profile, Standard DO-214AA packages
- IEC-61000-4-2 ESD 30kV (Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2 (IEC801-2)
- Compatible with industrial lighting environments
- RoHS compliant and halogen-free


**Electrical Characteristics** (All parameters are measured at  $T_A=25^\circ\text{C}$  unless otherwise noted)

Part Number	Marking	$V_{BR}$ Breakdown		$V_{DRM}$ Breakdown	$I_H$	$I_S$	$V_T @ I_T = 1$ Amp	$I_o^1$	Critical rate of rise dV/dt
		Volts		Volts	mAmps	mAmps	Volts	Amps	Volts
		Min	Max	Min	Max	Max	Max	Max	Min
PLED150S	PL150	136	167	132	21	800	2	1.0	250V/ $\mu\text{s}$
PLED180S	PL180	170	203	165	21	800	2	1.0	250V/ $\mu\text{s}$
PLED230S	PL230	190	240	184	21	800	2	1.0	250V/ $\mu\text{s}$
PLED260S	PL260	220	274	213	21	800	2	1.0	250V/ $\mu\text{s}$
PLED310S	PL310	275	330	276	21	800	2	1.0	250V/ $\mu\text{s}$
PLED350S	PL350	320	380	310	21	800	2	1.0	250V/ $\mu\text{s}$
PLED380S	PL380	350	430	340	21	800	2	1.0	250V/ $\mu\text{s}$
PLED450S	PL450	410	495	397	21	800	2	1.0	250V/ $\mu\text{s}$
PLED480S	PL480	450	600	436	21	800	2	1.0	250V/ $\mu\text{s}$

note:

1.  $I_o$  - Operation current tested @ aluminum boards, ambient temp 85°C

### Thermal Considerations

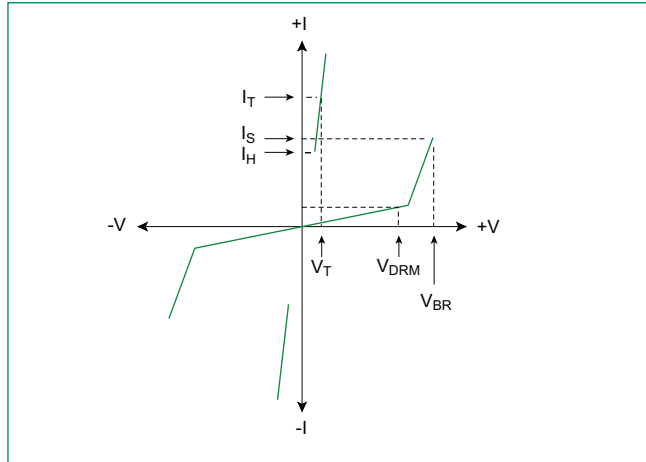
Package	Symbol	Parameter	Value	Unit
 DO-214	$T_J$	Operating Junction Temperature Range	-40 to +125	$^{\circ}\text{C}$
	$T_S$	Storage Temperature Range	-65 to +150	$^{\circ}\text{C}$
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90 <sup>1</sup> 40 <sup>2</sup>	$^{\circ}\text{C}/\text{W}$

Notes:

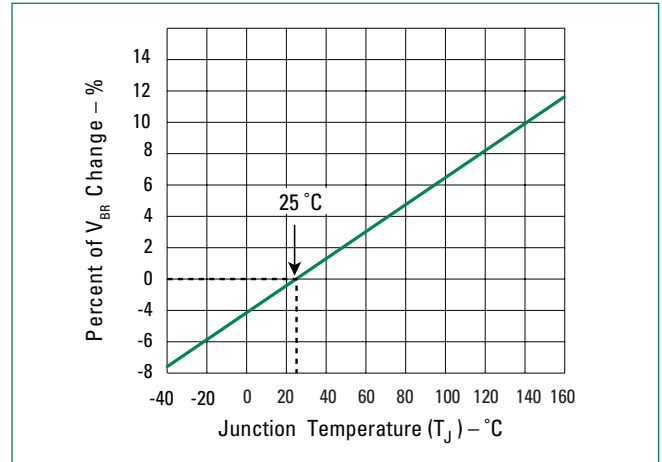
- Standard FR-4 PCB with Copper Pads (Recommended Size)
- Aluminum PCB

Thickness: 1.6mm  
 Grade: 1-2 W/mK Thermal Conductivity  
 Trace thickness: 2 oz  
 Insulation layer thickness: 215  $\mu\text{m}$   
 Solder Pad Dimensions: 2.0mm x 2.8mm (Recommended Size)

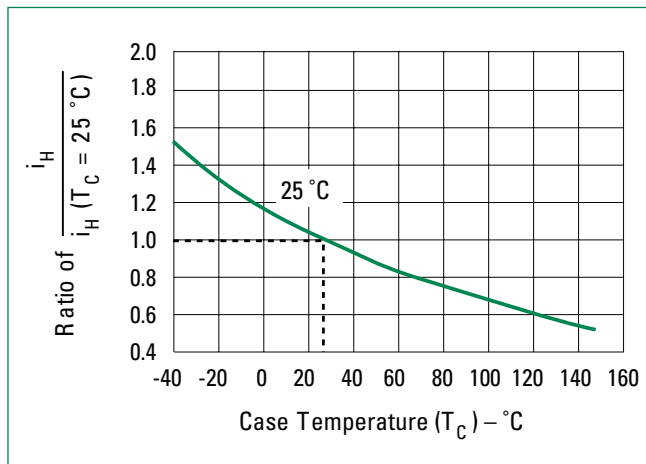
### V-I Characteristics



### $V_{BR}$ vs. Junction Temperature



### Normalized DC Holding Current vs. Case Temperature

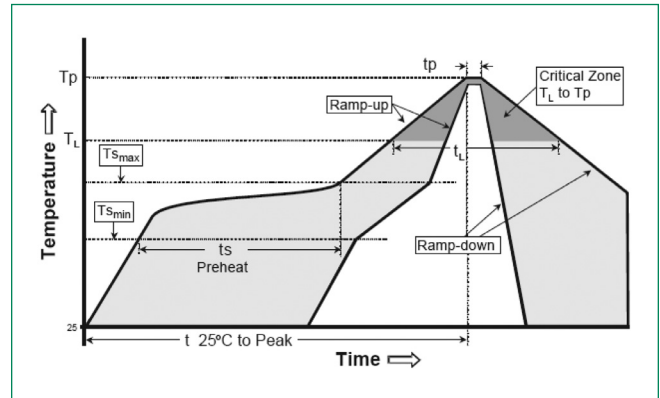


**Soldering Parameters**

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_l$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260 <sup>+0/-5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max
Do not exceed		260°C

**Physical Specifications**

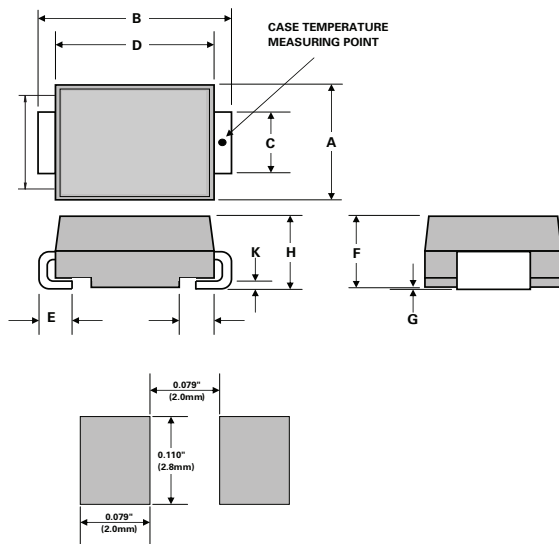
<b>Terminal Material</b>	Copper Alloy
<b>Terminal Finish</b>	100% Matte Tin Plated
<b>Body Material</b>	UL Recognized compound meeting flammability rating V-0.



**Environmental Specifications**

<b>High Temperature Voltage Blocking</b>	MIL-STD-750: Method 1040, Condition A 80% min $V_{DRM}$ (VAC-peak), 125°C, 504 hours
<b>Temperature Cycling</b>	MIL-STD-750: Method 1051, -55°C to 150°C, 15-minute dwell, 1000 cycles
<b>Biased Temperature &amp; Humidity</b>	EIA/JEDEC: JESD22-A101 52VDC, 85°C, 85%RH, 1008 hours
<b>High Temperature Storage</b>	MIL-STD-750: Method 1031 150°C, 1008 hours
<b>Low Temperature Storage</b>	-65°C, 1008 hours
<b>Thermal Shock</b>	MIL-STD-750: Method 1056 0°C to 100°C, 5-minute dwell, 10-second transfer, 10 cycles
<b>Resistance to Solder Heat</b>	MIL-STD-750: Method 2031 260°C, 10 seconds
<b>Moisture Sensitivity Level</b>	85%RH, +85°C, 168 hours, 3 reflow cycles (+260°C peak). JEDEC-J-STD-020, Level 1

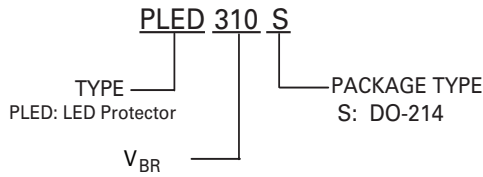
**Dimensions - DO-214 AA Package**



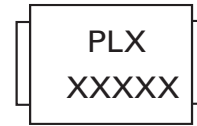
Recommended solder pad layout  
(Reference Only)

Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

**Part Numbering System**



**Part Marking System**

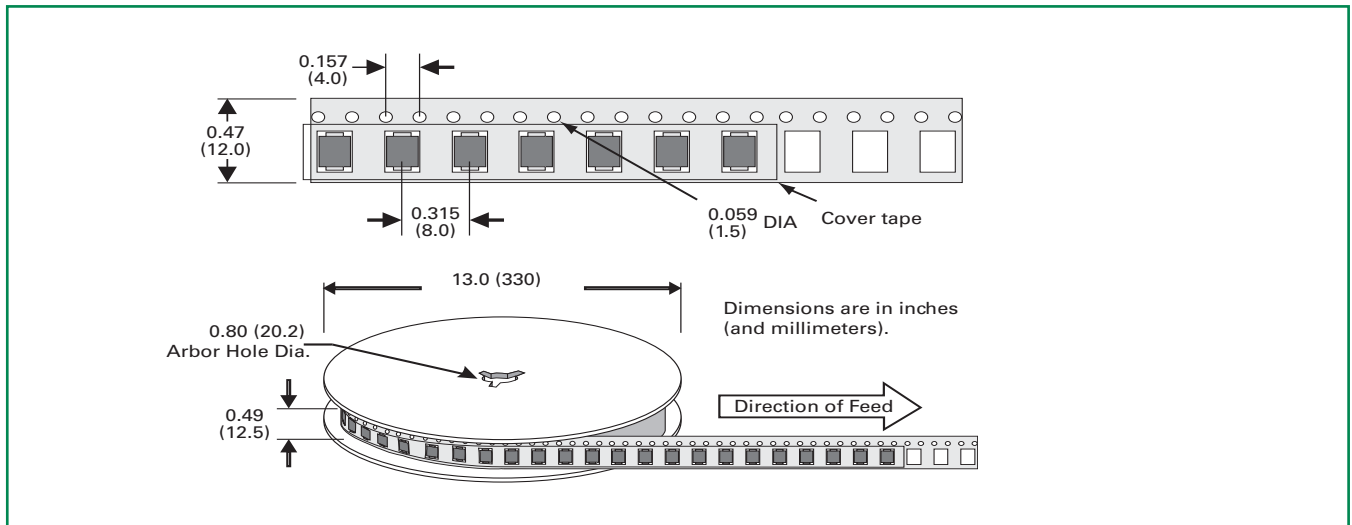


**Packaging**

Package	Description	Packaging Quantity	Industry Standard
S	DO-214	2500	EIA-481-1

**DO-214 Embossed Carrier Reel Pack (RP)**

Meets all EIA-481-1 Standards



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