

DR180 Series

180W Single Output LED Driver



■ Features

- Constant voltage and current output
- Universal AC input 100~305VAC
- Built-in active PFC function
- Output protections: Short circuit/Over voltage/Over load
- Fixed derating-cutoff type temperature protection
- Cooling by free air convection
- Digital, analog or DALI control dimming function
- Suitable for inside of the outdoor LED luminaires
- IP65 with Vo/Io adjusting screws, IP67 without Vo/Io adjusting screws
- Compliance to worldwide safety regulations for lighting
- Suitable for dry/damp/wet locations



IP65/67



■ General functions

Output Power	180W	Input Frequency	50/60Hz
Input Voltage Range	100~305Vac	Operating Temperature	-40°C~+60°C
Storage Temperature	-45°C~+85°C	Safety & EMC	UL8750, IEC61347, EN55015
Turn-on Delay Time	3.0S max.	Inrush Current	65A at 230Vac, Cold start
Over Temp Protection	Fixed derating-cutoff type temperature protection	Waterproof	IP65/IP67

■ Detailed Specification

TABLE 1:

Model		DR180-052S350X-YY	DR180-048S375X-YY	DR180-036S490X-YY	DR180-024S750X-YY	DR180-258S070X-YY
Output	DC Voltage	52Vdc	48Vdc	36Vdc	24Vdc	258Vdc
	Constant Current Operation Voltage <small>note.5</small>	32~52Vdc	29~48Vdc	22~36Vdc	15~24Vdc	154~258Vdc
	Rated DC Current	3500mA	3750mA	4900 mA	7500 mA	700mA
	Current Range	0~3500mA	0~3750mA	0~4900mA	0~7500mA	0~700mA
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)				
	Ripple and Noise	10%Vo	10%Vo	10%Vo	10%Vo	10%Vo
	Voltage ADJ. Range <small>note.3</small>	47~55Vdc	43~50Vdc	32~38Vdc	22~25Vdc	232~271Vdc
	Current ADJ. Range <small>note.3</small>	2100~3500mA	2250~3750mA	2940~4900mA	4500~7500mA	420~700mA
	Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
	Voltage Line Regulation	±1%	±1%	±1%	±1%	±1%
Voltage Load Regulation	±5%	±5%	±5%	±5%	±5%	
Input	Efficiency	91%	91%	90%	90%	92%
	Power Factor	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac
	AC Current	2.2A/100Vac, 1.0A/230Vac				
	Leakage Current	<0.75mA/230Vac; <0.5mA/120Vac				
Output Protection	Over Current	Constant current limiting				
	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.				
	Over Voltage	Shut down at 140% Vo and latch off o/p voltage, re-power on to recover				
Environmental	Operating Humidity	20~95% RH, non-condensing				
	Storage Humidity	10~95% RH				
	Temperature Coefficient	±0.03%/°C (0~50°C)				
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.				
Safety & EMC	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac				
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25°C/70% RH				
	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B				
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3				
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024				
Others	Authentication	UL/TUV/CE/FCC/RoHS/CQC/REACH				TUV/CE/RoHS
	MTBF	319k Hrs at full load and 30°C ambient conditions per MIL-HDBK-217F				
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours				
	Dimensions (mm)	226×68×41.3				
	Max. Case Temp.	Tc max=80°C				
	Net Weight	1.13Kg/pcs				
Note	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature.					
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.					
	3. Output voltage and current can be adjusted by internal potentiometer ("A" type only).					
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.					
	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.					
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.					
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.					
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.					
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.					

TABLE 2:

Model		DR180-172S105X-YY	DR180-129S140X-YY	DR180-102S175X-YY	DR180-086S210X-YY	DR180-074S245X-YY
Output	DC Voltage	172Vdc	129Vdc	102Vdc	86Vdc	74Vdc
	Constant Current Operation Voltage <small>note.5</small>	103~172Vdc	77~129Vdc	62~102Vdc	51~86Vdc	45~74Vdc
	Rated DC Current	1050mA	1400mA	1750mA	2100mA	2450mA
	Current Range	0~1050mA	0~1400mA	0~1750mA	0~2100mA	0~2450mA
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)				
	Ripple and Noise	10%Vo	10%Vo	10%Vo	10%Vo	10%Vo
	Voltage ADJ. Range <small>note.3</small>	155~181Vdc	116~135Vdc	92~107Vdc	77~90Vdc	67~78Vdc
	Current ADJ. Range <small>note.3</small>	630~1050mA	840~1400mA	1050~1750mA	1260~2100mA	1470~2450mA
	Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
	Voltage Line Regulation	±1%	±1%	±1%	±1%	±1%
	Voltage Load Regulation	±5%	±5%	±5%	±5%	±5%
Input	Efficiency	92%	92%	91%	91%	91%
	Power Factor	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac
	AC Current	2.2A/100Vac, 1.0A/230Vac				
	Leakage Current	<0.75mA/230Vac; <0.5mA/120Vac				
Output Protection	Over Current	Constant current limiting				
	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.				
	Over Voltage	Shut down at 140% Vo and latch off o/p voltage, re-power on to recover				
Environmental	Operating Humidity	20~95% RH, non-condensing				
	Storage Humidity	10~95% RH				
	Temperature Coefficient	±0.03%/°C (0~50°C)				
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.				
Safety & EMC	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac				
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25°C/70% RH				
	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B				
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3				
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024				
Others	Authentication	TUV/CE/RoHS/REACH				
	MTBF	319k Hrs at full load and 30°C ambient conditions per MIL-HDBK-217F				
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours				
	Dimensions (mm)	226×68×41.3				
	Max. Case Temp.	Tc max=80°C				
	Net Weight	1.13Kg/pcs				
Note	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature.					
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.					
	3. Output voltage and current can be adjusted by internal potentiometer ("A" type only).					
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.					
	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.					
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.					
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.					
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.					
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.					

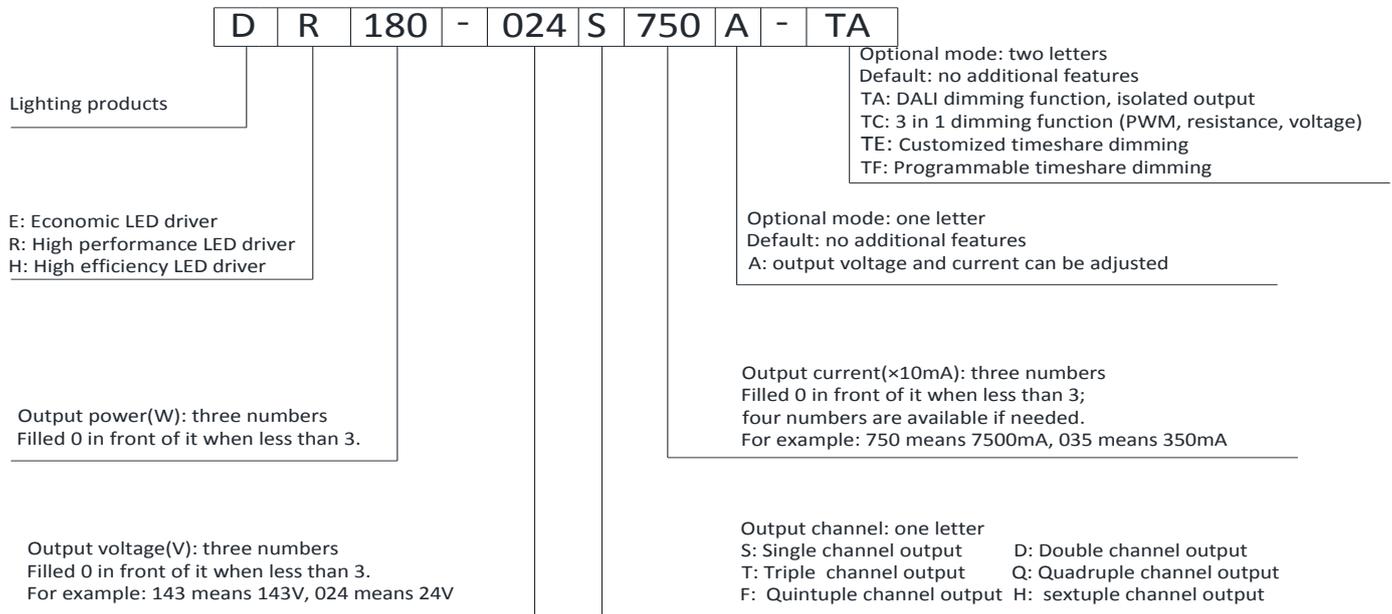
TABLE 3:

Model		DR180-065S280X-YY	DR180-058S315X-YY	DR180-054S330X-YY	DR180-042S430X-YY	DR180-033S560X-YY
Output	DC Voltage	65Vdc	58Vdc	54Vdc	42Vdc	33Vdc
	Constant Current Operation Voltage <small>note.5</small>	29~65Vdc	35~58Vdc	33 ~54Vdc	26 ~42Vdc	20 ~33Vdc
	Rated DC Current	2800mA	3150 mA	3300mA	4300 mA	5600 mA
	Current Range	0~2800mA	0~3150mA	0~3300mA	0~4300mA	0~5600mA
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)				
	Ripple and Noise	10%Vo	10%Vo	10%Vo	10%Vo	10%Vo
	Voltage ADJ. Range <small>note.3</small>	59~68Vdc	52~61Vdc	49~57Vdc	38~44Vdc	30~35Vdc
	Current ADJ. Range <small>note.3</small>	1680~2800mA	1890~3150mA	1980~3300mA	2580~4300mA	3360~5600mA
	Voltage Tolerance	±5%	±5%	±5%	±5%	±5%
	Voltage Line Regulation	±1%	±2%	±1%	±0%	±1%
Voltage Load Regulation	±5%	±5%	±5%	±5%	±5%	
Input	Efficiency	91%	91%	91%	91%	90%
	Power Factor	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac
	AC Current	2.2A/100Vac, 1.0A/230Vac				
	Leakage Current	<0.75mA/230Vac; <0.5mA/120Vac				
Output Protection	Over Current	Constant current limiting				
	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.				
	Over Voltage	Shut down at 140% Vo and latch off o/p voltage, re-power on to recover				
Environmental	Operating Humidity	20~95% RH, non-condensing				
	Storage Humidity	10~95% RH				
	Temperature Coefficient	±0.03%/°C (0~50°C)				
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.				
Safety & EMC	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac				
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25°C/70% RH				
	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B				
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3				
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024				
Others	Authentication	TUV/CE/RoHS/REACH				
	MTBF	319k Hrs at full load and 30°C ambient conditions per MIL-HDBK-217F				
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours				
	Dimensions (mm)	226×68×41.3				
	Max. Case Temp.	Tc max=80°C				
	Net Weight	1.13Kg/pcs				
Note	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature.					
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.					
	3. Output voltage and current can be adjusted by internal potentiometer ("A" type only).					
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.					
	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.					
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.					
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.					
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.					
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.					

TABLE 4:

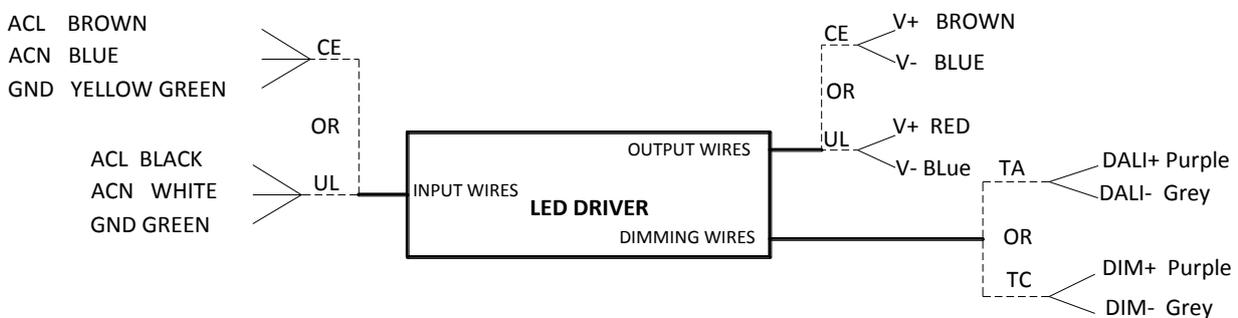
Model		DR180-029S630X-YY			
Output	DC Voltage	29Vdc			
	Constant Current Operation Voltage <small>note.5</small>	18~29Vdc			
	Rated DC Current	6300 mA			
	Current Range	0~6300mA			
	Dimming Current Range	10~100% rated output current ($\geq 50\%$ rated output voltage)			
	Ripple and Noise	10%Vo			
	Voltage ADJ. Range <small>note.3</small>	26~30Vdc			
	Current ADJ. Range <small>note.3</small>	3780~6300mA			
	Voltage Tolerance	$\pm 5\%$			
	Voltage Line Regulation	$\pm 2\%$			
Voltage Load Regulation	$\pm 5\%$				
Input	Efficiency	90%			
	Power Factor	0.96/230Vac			
	AC Current	2.2A/100Vac, 1.0A/230Vac			
	Leakage Current	<0.75mA/230Vac; <0.5mA/120Vac			
Output Protection	Over Current	Constant current limiting			
	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power $\leq 10W$.			
	Over Voltage	Shut down at 140% Vo and latch off o/p voltage, re-power on to recover			
Environmental	Operating Humidity	20~95% RH, non-condensing			
	Storage Humidity	10~95% RH			
	Temperature Coefficient	$\pm 0.03\%/^{\circ}C$ (0~50 $^{\circ}C$)			
	Vibration	10~300Hz, 1G, Period for 60min, each along X、 Y、 Z axes.			
Safety & EMC	Withstand Voltage	I/P-OP: 3.75kVac; IP-FG: 1.56kVac/2.00kVac (remove discharge tube); O/P-FG: 2.00kVac			
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25 $^{\circ}C$ /70% RH			
	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B			
	EMC Emission	Compliance to EN61000-3-2 Class C ($\geq 50\%$ load); EN61000-3-3			
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024			
Others	Authentication	TUV/CE/RoHS/REACH			
	MTBF	319k Hrs at full load and 30 $^{\circ}C$ ambient conditions per MIL-HDBK-217F			
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours			
	Dimensions (mm)	226x68x41.3			
	Max. Case Temp.	Tc max=80 $^{\circ}C$			
	Net Weight	1.13Kg/pcs			
Note	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25 $^{\circ}C$ of ambient temperature.				
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ f & 47 μ f parallel capacitor.				
	3. Output voltage and current can be adjusted by internal potentiometer ("A" type only).				
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.				
	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.				
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.				
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.				
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.				

■ Part number code

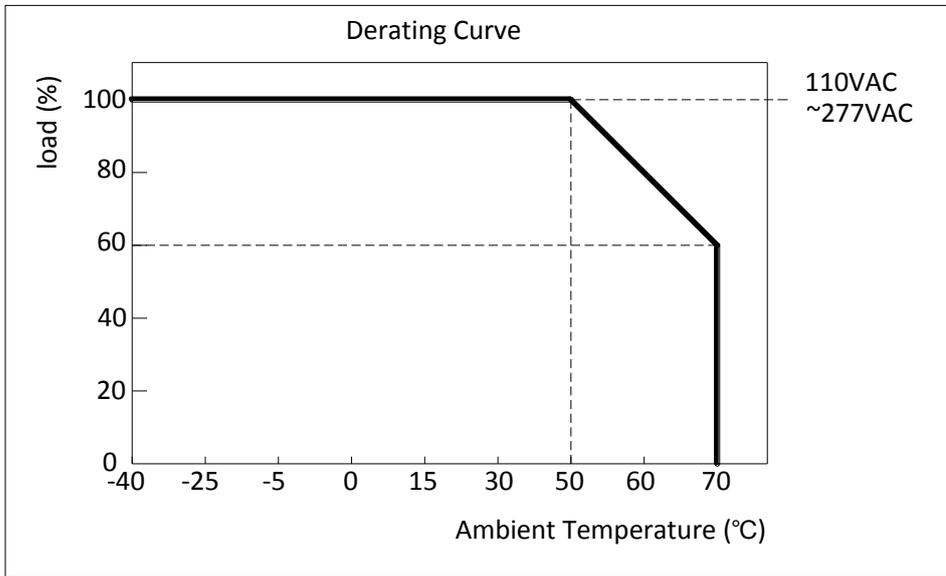


For example: DR180-024S750A-TA means: high performance LED driver; output power 180W; output voltage 24Vdc; output current 7500mA; single output; output voltage and current can be adjusted; with DALI dimming function and isolated output.

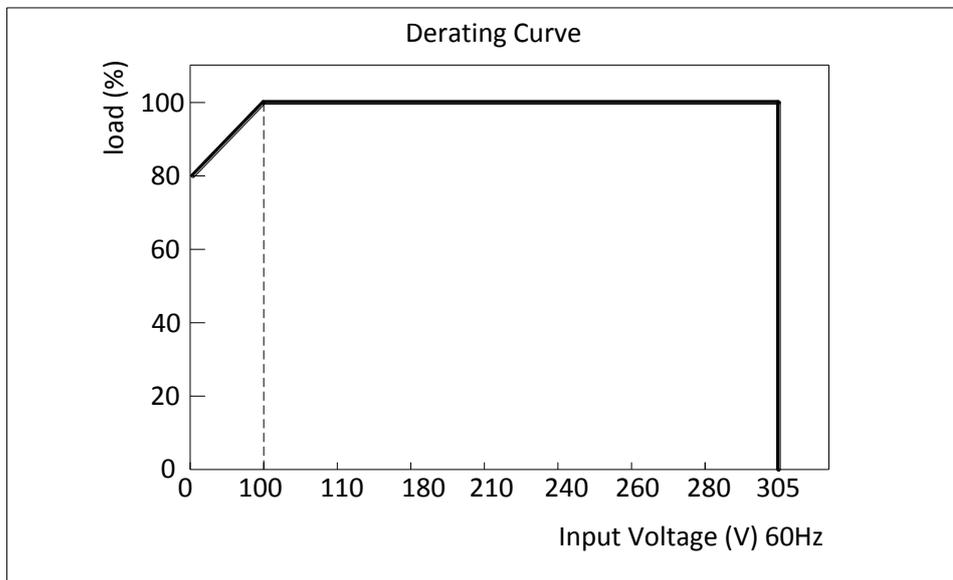
■ wiring diagram



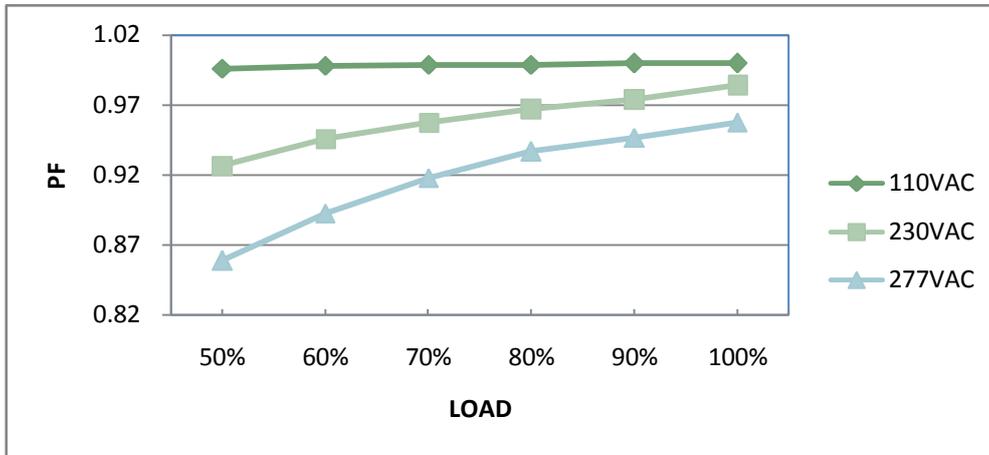
■ Derating Curve



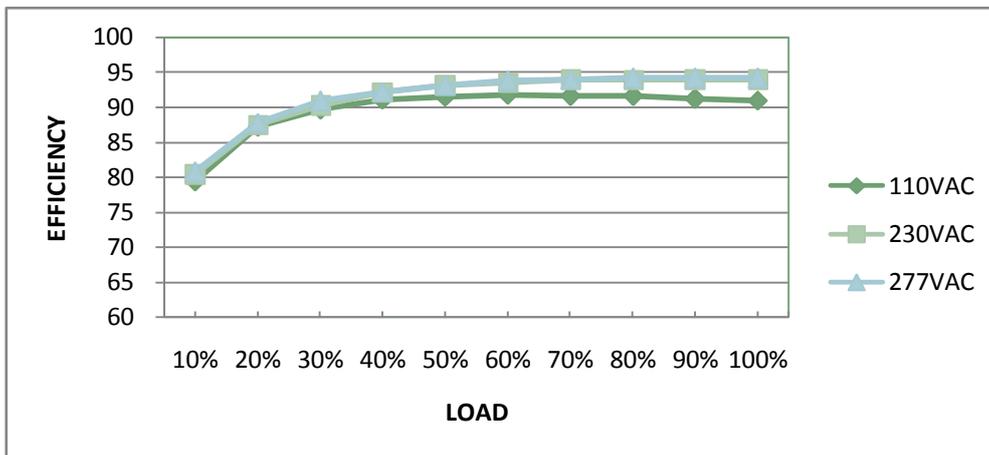
■ Static Characteristics



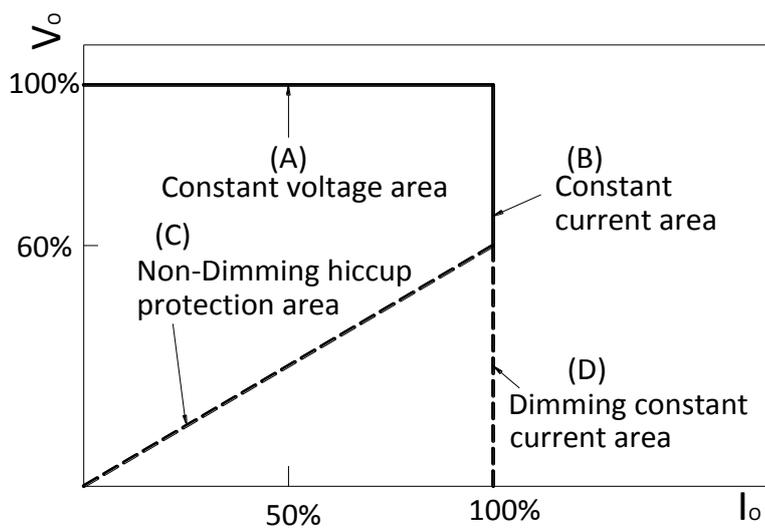
■ Power Factor Characteristic (DR180-048S375)



■ EFFICIENCY vs LOAD (DR180-048S375)

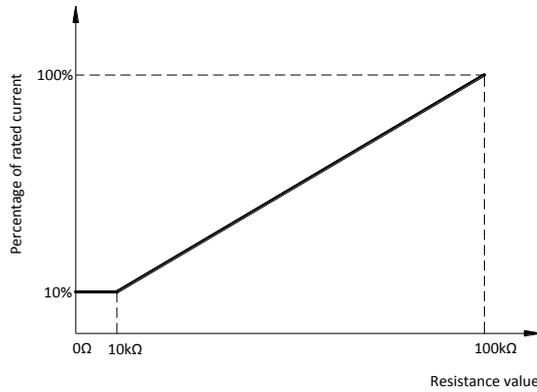


■ Typical LED power supply I-V curve

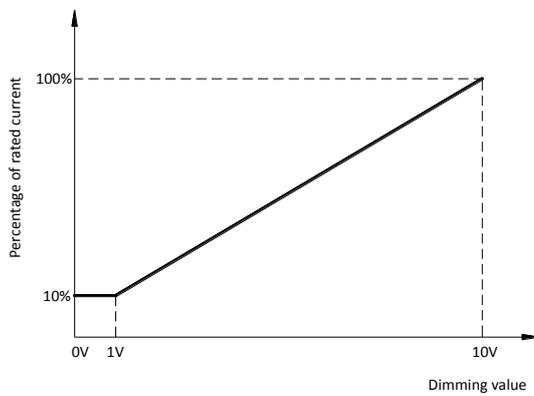


■ “-TC” option: 0-10V, resistance & PWM dimming

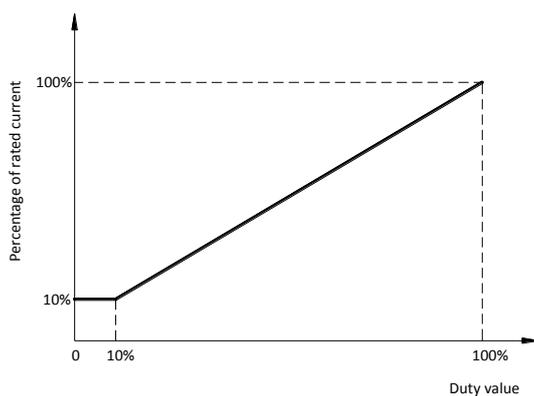
a. Reference resistance value for output current adjustment (Typical)



b. 0-10V dimming function for output current adjustment (Typical)



c. 10V PWM signal for output current adjustment (Typical): Frequency range: 200Hz~1.5KHz



Dimming control details:

Parameters		Minimum	Typical	Maximum
Dimming Type	Resistance	0kΩ	0-100kΩ	∞
	Voltage	-2V	0-10V	15V
	PWM(10%~100% f=200Hz~1.5KHz)	-2V	0-10V	15V
Dimming Current		-0.5mA	-	0.5mA

■ "-TE" option: Customized timeshare dimming.

- Different output current (10% - 100% rate output current) can be set for different time periods.
- Maximum 4 sections is available. The minimum length is 0 to maximum 12 hours for each section.
- The parameter can't be changed after shipping.

■ "-TF" option: Programmable timeshare dimming.

- Output current is programmable with the range of 10%~100% of rated output current.
- Maximum 4 sections timeshare dimming is available. The minimum length is 0 to maximum 12 hours for each section.

For example:

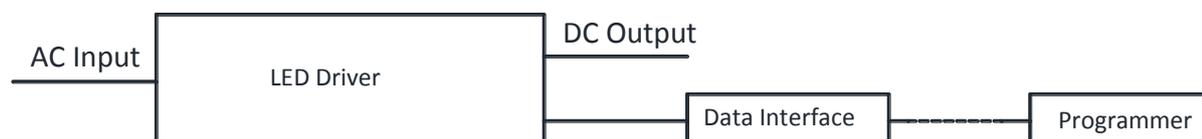
The first section: the time period is 0~1h, the output current is 40% of rated output current.

The second section: the time period is 1h~4h, the output current is 100% of rated output current.

The third section: the time period is 4h~8h, the output current is 40% of rated output current.

The fourth section: the time period is 8h~12h, output current is 60% of rated output current.

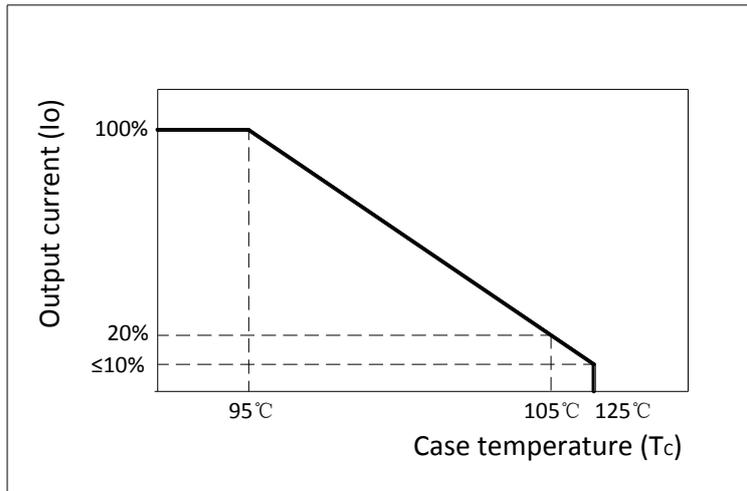
- The parameters are set by a programmer.
- The data interface is waterproof.



■ Input and output Dielectric strength

Isolation	Input Wires	Output Wires	Isolated Dimming Control Wires	Chassis
Input Wires	NA	3750	2000	1560/2000(remove discharge tube)
Output Wires	3750	NA	2000	2000
Isolated Dimming Control Wires	2000	2000	NA	2000
Chassis	1560/2000(remove discharge tube)	2000	2000	NA

■ Fixed derating-cutoff type temperature protection



This datasheet is for reference only. Impow reserves all rights for final explanation of the technical materials.