





- Constant Voltage and Current Output
- Universal AC Input of 100~305VAC
- Built-in Active PFC function
- Protections: Short Circuit/Over Voltage/Over Load
- Fixed Derating-Cutoff Type of Temperature Protection
- Cooling by Free Air Convection
- 3 in 1 Dimming Function (optional)
- Adjustable Output Voltage and Current (optional)
- Suitable for LED Lighting and LED Electronic Display Applications
- IP65 with Vo/Io Adjustment Screws, IP67 without
- Class II Some Models
- Suitable for Dry / Damp / Wet Locations
- 5 Year Warranty



#### ■ General functions

Output Power	45W	Input Frequency	50/60Hz
Input Voltage Range	100~305Vac	Operating Temperature	-40°C~+60°C
Storage Temperature	-45°C~+85°C	Safety & EMC	UL8750, UL1310 Class 2, IEC61347, EN55015
Turn-on Delay Time	3.0S max.	Inrush Current	40A at 230Vac, Cold start
Over Temp Protection	Fixed derating-cutoff type temperature protection	Waterproof	IP65/IP67

All specifications are typical at nominal input, full load, and 25°C unless otherwise noted

ASTRODYNE USA: 1-800-823-8082 ASTRODYNE PACIFIC: 886-2-26983458



# DR045 series

TABLE 1:

	Model	DR045-129S035X-YY	DR045-065S070X-YY	DR045-048S095X-YY	DR045-036S125X-YY	DR045-024S190X-YY		
	DC Voltage	129Vdc	65Vdc	48Vdc	36Vdc	24Vdc		
	Constant Current Operation Voltage note.5	78~129Vdc	39~65Vdc	29~48Vdc	<b>22</b> ~36Vdc	15~24Vdc		
	Rated DC Current	350mA	700mA	950mA	1250mA	1900mA		
	Current Range	129Vdc 65Vdc 48Vdc 36Vdc  129*48Vdc 22*36Vdc  350mA 700mA 950mA 1250mA  0*350mA 0*700mA 0*950mA 0*1250mA  10*100% rated output current (£50% rated output voltage)  10%V0 10%V0 10%V0 10%V0 10%V0  3 116*135Vdc 59*68Vdc 43*50Vdc 32*38Vdc  3 210*350mA 420*700mA 570*950mA 750*1250mA  110% 110% 110% 110% 110%  13% 13% 13% 13% 13% 13% 13% 13% 13% 13%	0~1900mA					
	Dimming Current Range		10~100% rated o	utput current (≥50% rate	d output voltage)			
Output	Ripple and Noise	10%Vo	10%Vo	10%Vo	36Vdc  22~36Vdc  1250mA  0~1250mA  0% rated output voltage)  10%Vo  32~38Vdc  A 750~1250mA  ±10%  ±3%  ±5%  87.5%  c 0.96/230Vac  ∴ Short-circuit power ≤10W. recover  ube); O/P-FG: 2.00KVac  ∴ Short-circuit power ≤10W. recover  of ambient temperature. nated with a 0.1µf & 47µf para  able operation region for LED reference of the set up timal equipment. Since EMC perf	10%Vo		
	Voltage ADJ. Range note.3	116~135Vdc	59~68Vdc	43~50Vdc		22~25Vdc		
	Current ADJ. Range note.3	210~350mA	420~700mA	570~950mA		1140~1900mA		
	Voltage Tolerance	±10%	±10%	±10%		±10%		
	Voltage Line Regulation	±3%	±3%	±3%	±3%	±3%		
	Voltage Load Regulation	±5%	±5%	±5%	±5%	±5%		
	Efficiency	89%	88%	87.5%	87.5%	86.5%		
Output  Input  Output Protection  Environmental  Others  Note	Power Factor	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac		
Input	AC Current							
	Leakage Current	<0.75mA/230Vac; <0.5	5mA/120Vac					
	Over Current	Constant current limiti	ing					
Protection	Short Circuit	<u> </u>						
	Operating Humidity							
Environmental	Temperature Coefficient							
	Vibration	10~300Hz, 1G, Period	for 60min, each along X \	Y、Z axes.	18Vdc 22~36Vdc  20mA 1250mA  10mA 0~1250mA  30mA 0~1250mA  31t (≥50% rated output voltage)  36Vo 10%Vo  30Vdc 32~38Vdc  350mA 750~1250mA  0% ±10%  38 ±3%  5% ±5%  230Vac 0.96/230Vac  1 type: Short-circuit power ≤10W.  2 on to recover  3 on to recover  3 on to recover  3 on to recover  4 on to recover  2 on to recover  3 on to recover  4 on to recover  5 on to recover  6 on to			
	Withstand Voltage	I/P-OP: 3.75KVac; IP-F0	G: 1.56KVac/2.00KVac (re	move discharge tube); C				
	Isolation Resistance							
Safety & EMC	EMC Interference	Compliance to EN5501	15, EN55022 (CISPR22) CI	ass B				
	EMC Emission							
	EMC Immunity	Compliance to EN6100	00-4-2, 3, 4, 5, 6, 8, 11; Ef	NV50204, EN61547, EN5	dc 22~36Vdc  1250mA  A 0~1250mA  50% rated output voltage)  10%Vo  dc 32~38Vdc  mA 750~1250mA  ±10%  ±3%  ±5%  87.5%  /ac 0.96/230Vac  De: Short-circuit power ≤10W.  o recover  Corecover  Corecover			
	Authentication	UL /TUV/CE/FCC	/RoHS/CQC/REACH	UL class	2/TUV/CE/FCC/RoHS/CO	QC/REACH		
	MTBF							
	Input Over-voltage	Can survive input over	-voltage stress of 320Vac	0~950mA 0~1250mA 0~1900  utput current (≥50% rated output voltage)  10%Vo 10%Vo 10%Vo 10%Vo  43~50Vdc 32~38Vdc 22~25  570~950mA 750~1250mA 1140~19  ±10% ±10% ±10% ±3% ±3% ±3%  ±5% ±5% ±5% ±5%  87.5% 87.5% 87.5% 86.5  0.96/230Vac 0.96/230Vac 0.96/23  cup; Dimmer type: Short-circuit power ≤10W.  e, re-power on to recover  Y. Z axes.  emove discharge tube); O/P-FG: 2.00KVac  C/70% RH  ass B  j); EN61000-3-3  NV50204, EN61547, EN55024  UL class 2/TUV/CE/FCC/RoHS/CQC/REACH  ons per MIL-HDBK-217F  efor 48 hours  ted load and 25°C of ambient temperature.  and pair-wire terminated with a 0.1μf & 47μf parallel capacitor.  Type only).  and regulation.  ge. This is the suitable operation region for LED related applicating ign.  Characteristics for more details.  BB7000.1, FCC part18.  Dower supply may lead to increase of the set up time.				
Others	Dimensions (mm)	169×42×34						
	Max. Case Temp.	Range						
	Net Weight	0.43Kg/pcs		48Vdc 36Vdc  29~48Vdc 22~36Vdc  950mA 1250mA  0~950mA 0~1250mA  tput current (≥50% rated output voltage)  10%Vo 10%Vo  43~50Vdc 32~38Vdc 570~950mA 750~1250mA  ±10% ±10%  ±3% ±3%  ±5% ±5%  87.5% 87.5%  0.96/230Vac 0.96/230Vac  up; Dimmer type: Short-circuit power ≤10W.  re-power on to recover  Y、 Z axes.  move discharge tube); O/P-FG: 2.00KVac  //70% RH  ss B  EN61000-3-3  V50204, EN61547, EN55024  UL class 2/TUV/CE/FCC/RoHS/CQ  ins per MIL-HDBK-217F  for 48 hours  d pair-wire terminated with a 0.1µf & 47µf parallety type only). d regulation. e. This is the suitable operation region for LED religion. b. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. b. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion. c. This is the suitable operation region for LED religion.				
	1. All parameters NOT specia	ally mentioned are meas	ured at 230Vac input, rat	ed load and 25°C of aml	pient 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.							
	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.							
Note	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.							
	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.							
	10. Canada (output voltage: 42-60V) : suitable for class 2 wiring method.							



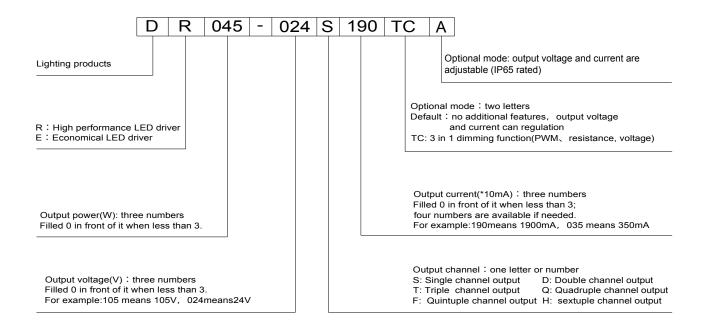
# DR045 series

#### TABLE 2:

	Model	DR045-027\$175X-YY	DR045-020S230X-YY	DR045-015S300X-YY	DR045-012S380X-YY		
	DC Voltage	27Vdc	20Vdc	15Vdc	12Vdc		
	Constant Current Operation Voltage note.5	17~27Vdc	12~20Vdc	9~15Vdc	8~12Vdc		
	Rated DC Current	1750mA	2300mA	3000mA	3800mA		
	Current Range	0~1750mA	0~2300mA	0~3000mA	0~3800mA		
	Dimming Current Range		10~100% rated out	put current (≥50% rate	d output voltage)		
Output	Ripple and Noise	10%Vo	10%Vo	10%Vo	10%Vo		
	Voltage ADJ. Range note.3	24~28Vdc	18~21Vdc	14~16Vdc	a 3800mA  A 3800mA  D 3800mA  D 3800mA  D 3800mA  D 10%Vo  D 10%Vo  D 11~13Vdc  D 1280~3800mA  D 1280~3800mA  D 10%  D 10%  D 10%Vo  D 10		
	Current ADJ. Range note.3	1050~1750mA	1380~2300mA	1800~3000mA	2280~3800mA		
	Voltage Tolerance	±10%	±10%	±10%	9~15Vdc 8~12Vdc  3000mA 3800mA 0~3000mA 0~3800mA  urrent (≥50% rated output voltage) 10%Vo 10%Vo 14~16Vdc 11~13Vdc 1800~3000mA 2280~3800mA ±10% ±3% ±3% ±5% ±5% 85% 83.5% 0.96/230Vac 0.96/230Vac  Dimmer type: Short-circuit power ≤10W. Dower on to recover  Z axes. discharge tube); O/P-FG: 2.00KVac 6 RH  REACH er MIL-HDBK-217F 8 hours  and and 25°C of ambient temperature. r-wire terminated with a 0.1µf & 47µf par only). ulation. dis is the suitable operation region for LED cteristics for more details.  30.1, FCC part18. supply may lead to increase of the set up to attion with final equipment. Since EMC petation with final equipment.		
	Voltage Line Regulation	±3%	20Vdc 15Vdc 8~12Vdc 8~12Vdc 12~20Vdc 9~15Vdc 8~12Vdc 2300mA 3000mA 3800mA 0~3000mA 0~3800mA 0~3000mA 0~3800mA 0~3000mA 0~3800mA 10~100% rated output current (250% rated output voltage) 10%Vo 10%Vo 10%Vo 10%Vo 10%Vo 11~13Vdc 11~13Vdc 11~13Vdc 11~13Vdc 11~13Vdc 11~13Vdc 11~13Vdc 11~10% 110% 110% 110% 110% 15% 15% 15% 15% 15% 15% 15% 15% 15% 15				
	Voltage Load Regulation	±5%	±5%	±5%	12Vdc  8~12Vdc  3800mA  0~3800mA  10%Vo  10%Vo  11~13Vdc  14280~3800mA  ±10%  ±3%  ±5%  83.5%  c 0.96/230Vac  ∴ Short-circuit power ≤10W. recover  ube); O/P-FG: 2.00KVac  7, EN55024		
	Efficiency	86.5%	86.5%	85%	83.5%		
	Power Factor	0.96/230Vac	0.96/230Vac	0.96/230Vac	0.96/230Vac		
Input	AC Current	0.5A/100Vac, 0.25A/230Vac					
	Leakage Current	<0.75mA/230Vac; <0.5	5mA/120Vac	15Vdc 12Vdc  9~15Vdc 8~12Vdc  3000mA 3800mA  0~3000mA 0~3800mA  oragonoma 0.000mA  14~16Vdc 11~13Vdc 1800~3000mA 2280~3800mA  ±10% ±10%  ±3% ±3%  ±5% ±5%  85% 83.5%  0.96/230Vac 0.96/230Vac  oragonoma			
	Over Current	Constant current limiti	ing				
Output Protection	Short Circuit Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.						
Protection	Over Voltage	Shut down at 140% Vo	and latch off o/p voltage	00mA 0~3000mA 0~3800mA 0~3800mA 00% rated output current (≥50% rated output voltage)  %Vo 10%Vo 10%Vo 21Vdc 14~16Vdc 11~13Vdc 2300mA 1800~3000mA 2280~3800mA 00% ±10% ±10% 33% ±3% ±3% 55% ±5% ±5% 385% 83.5% 230Vac 0.96/230Vac 0.96/23			
	Operating Humidity 20~95% RH, non-condensing						
	Storage Humidity 10~95% RH						
Environmental  Storage Humidity 10~95% RH  Temperature Coefficient ±0.03%/°C (0~50°C)  Vibration 10~300Hz, 1G, Period for 60min, each along							
	Vibration	10~300Hz, 1G, Period	for 60min, each along X、	Y、Z axes.	dic 8~12Vdc  A 3800mA  mA 0~3800mA  150% rated output voltage)  10% vo  dc 11~13Vdc  0mA 2280~3800mA  ±10%  ±3%  ±5%  83.5%  Vac 0.96/230Vac   Ppe: Short-circuit power ≤10W.  to recover  e tube); O/P-FG: 2.00KVac  Ppe: Short-circuit power ≤10W.  to recover  **C of ambient temperature.**  minated with a 0.1µf & 47µf parallel of the set up time of the se		
	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					
Safety & EMC	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B					
Environmental Temperature Coe Vibration Withstand Voltag Isolation Resistan Safety & EMC EMC Interference EMC Emission	EMC Emission	Compliance to EN61000-3-2 Class C (250%load); EN61000-3-3					
	EMC Immunity	Compliance to EN6100	00-4-2, 3, 4, 5, 6, 8, 11; E	NV50204, EN61547, EN5	9~15Vdc 8~12Vdc  3000mA 3800mA  0~3000mA 0~3800mA  current (≥50% rated output voltage)  10%Vo 10%Vo  14~16Vdc 11~13Vdc  1800~3000mA 2280~3800mA  ±10% ±3% ±3%  ±5% ±5% 85%  85% 83.5%  0.96/230Vac 0.96/230Vac  Dimmer type: Short-circuit power ≤10W.  power on to recover  Z axes.  re discharge tube); O/P-FG: 2.00KVac  % RH  3 61000-3-3 2024, EN61547, EN55024  //REACH  per MIL-HDBK-217F  48 hours  Dad and 25°C of ambient temperature.  sir-wire terminated with a 0.1µf & 47µf parallel e only).  gulation.  his is the suitable operation region for LED relations is the suitable operation region for LED relations is the suitable operation.  Supply may lead to increase of the set up time.  Parallon with final equipment. Since EMC performantion with final equipment. Since EMC performantic material with final equipment.		
	Authentication		TUV/CE/R	in, each along X、Y、Z axes.  EVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac  hms/500Vdc/25°C/70% RH  5022 (CISPR22) Class B  lass C (≥50%load); EN61000-3-3  3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024  TUV/CE/RoHS/REACH  ambient conditions per MIL-HDBK-217F			
	MTBF	324k Hrs at full load and 30°C ambient conditions per MIL-HDBK-217F					
Others	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours					
Others	Dimensions (mm)	169×42×34		atted output current (≥50% rated output voltage)  10%Vo 10%Vo 10%Vo 10%Vo 10%Vo 11~13Vdc 11~			
	Max. Case Temp.	Tc max=80°C					
	Net Weight	0.43Kg/pcs		86.5% 85% 83.5%  196/230Vac 0.96/230Vac 0.96/230Vac  DVac  tomatically at hiccup; Dimmer type: Short-circuit power ≤10W.  ch off o/p voltage, re-power on to recover  in, each along X. Y. Z axes.  EVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac  mms/500Vdc/25°C/70% RH  5022 (CISPR22) Class B  lass C (≥50%load); EN61000-3-3  B, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024  TUV/CE/RoHS/REACH  ambient conditions per MIL-HDBK-217F  estress of 320Vac for 48 hours  230Vac input, rated load and 25°C of ambient temperature.  using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.  other tentiometer ("A" type only).  an and voltage load regulation.  ted output voltage. This is the suitable operation region for LED related applicate exercisic system design.			
	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						
Note	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.  10. Canada (output voltage: 42-60V): suitable for class 2 wiring method.						
	10. Canada (output voitage:	42-60V) : suitable for cla	iss z wiring method.				

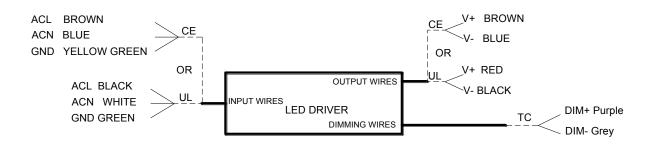


## Part number code



For example: DR045-024S190TC means it is a high performance LED driver, output power 45W, output voltage 24Vdc, output current 1900mA, single output, with 3 in 1 dimming function.

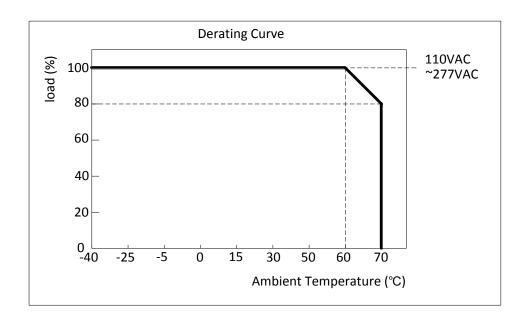
# wiring diagram



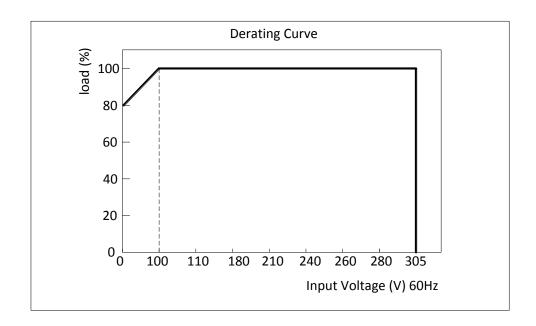
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# ■ Derating Curve



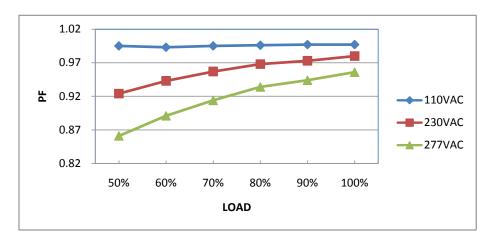
## ■ Static Characteristics



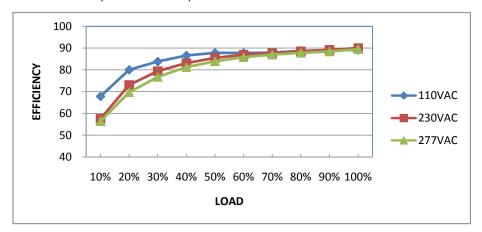




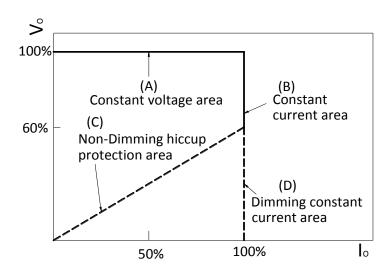
## ■ Power Factor Characteristic (DR045-033S140)



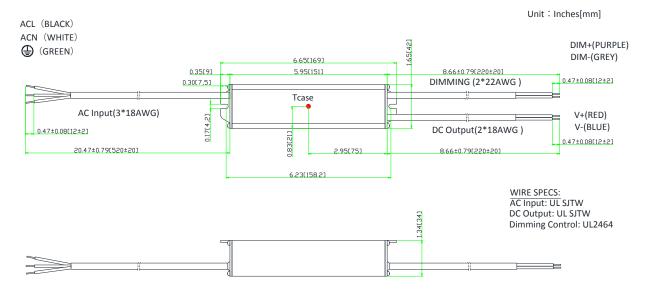
#### ■ EFFICIENCY vs LOAD (DR045-033S140)



## ■ Typical LED power supply I-V curve



#### ■ Mechanical Outline



- Tcase: Max. Case Temperature
- Power's internal temperature is 10°C warmer than case temperature.
- No dimming control wire if without dimming function.

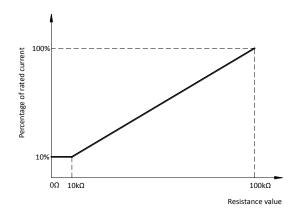
# ■ "A" option

- a. Output voltage and current can be adjusted by internal potentiometer.
- b. IP65
- c. The potentiometers shall be enclosed in the end product and are accessible via adjustment holes.

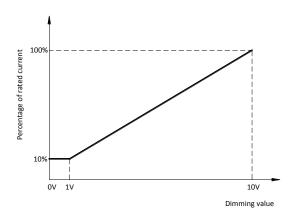
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# ■ "-TC" option: 0-10V, resistance & PWM dimming

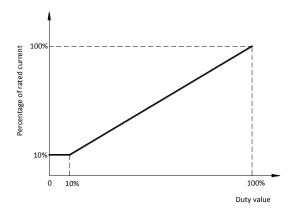
a. Reference resistance value for output current adjustment (Typical)



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

# ■ Input and output Dielectric strength

Isolation	Input Wires	Output Wires	Isolated Dimming Control Wires	Chassis
Input Wires	NA	3750	2000	1560
Output Wires	3750	NA	2000	2000
Isolated Dimming Control Wires	2000	2000	NA	2000
Chassis	1560	2000	2000	NA

# ■ Fixed derating-cutoff type temperature protection

