

## DH250 Series

### 250W Single Output LED Driver



#### ■ Features

- Constant voltage and current output
- Universal AC input 100~305VAC
- Built-in active PFC function
- High efficiency
- 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 luminaries
- 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	250W	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	50A at 230Vac, Cold start
Over Temp Protection	Fixed derating-cutoff type temperature protection	Waterproof	IP65/IP67

## ■ Detailed Specification

TABLE 1:

Model		DH250-054S463X-YY	DH250-048S520X-YY	DH250-042S600X-YY	DH250-036S700X-YY	DH250-030S833X-YY
Output	DC Voltage	54Vdc	48Vdc	42Vdc	36Vdc	30Vdc
	Constant Current Operation Voltage <small>note.5</small>	33~54Vdc	29~48Vdc	26~42Vdc	22~36Vdc	18~30Vdc
	Rated DC Current	4630 mA	5200 mA	6000 mA	7000 mA	8330 mA
	Current Range	0~4630 mA	0~5200 mA	0~6000 mA	0~7000 mA	0~8330 mA
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)				
	Ripple and Noise	200mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p
	Voltage ADJ. Range <small>note.3</small>	49~57Vdc	43~50Vdc	38~44Vdc	32~38Vdc	27~32Vdc
	Current ADJ. Range <small>note.3</small>	2315~4630 mA	2600~5200 mA	3000~6000 mA	3500~7000 mA	4165~8330 mA
	Voltage Tolerance	±1%	±1%	±1%	±1%	±1%
	Voltage Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	Voltage Load Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Input	Efficiency	94.0%	93.5%	93%	93%	93%
	Power Factor	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac
	AC Current	3.0A/100Vac, 1.4A/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: 3.75KVdc; IP-FG: 1.56KVdc/2.00KVdc (remove discharge tube); O/P-FG: 2.00KVdc				
	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/ CE/RoHS/REACH				
	MTBF	173k 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)	249×68×41.3				
	Max. Case Temp.	Tc max=80°C				
	Net Weight	1.24Kg/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:

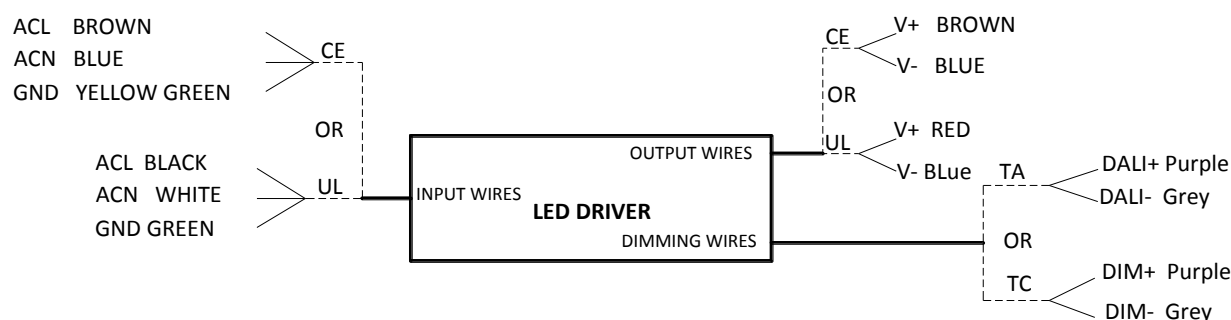
Model		DH250-024S1000X-YY	DH250-020S1250X-YY	DH250-015S1500X-YY	DH250-012S1600X-YY		
Output	DC Voltage	24Vdc	20Vdc	15Vdc	12Vdc		
	Constant Current Operation Voltage <small>note.5</small>	15~24Vdc	12~20Vdc	9~15Vdc	8~12Vdc		
	Rated DC Current	10000 mA	12500 mA	15A	16A		
	Current Range	0~10000 mA	0~12500 mA	0~15A	0~16A		
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)					
	Ripple and Noise	150mVp-p	200mVp-p	200mVp-p	200mVp-p		
	Voltage ADJ. Range <small>note.3</small>	22~25Vdc	18~21Vdc	14~16Vdc	11~13Vdc		
	Current ADJ. Range <small>note.3</small>	5000~10000 mA	6250~12500 mA	7.5~15A	8~16A		
	Voltage Tolerance	±1%	±1%	±1%	±1%		
	Voltage Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%		
	Voltage Load Regulation	±0.5%	±0.5%	±0.5%	±0.5%		
Input	Efficiency	93%	92%	91.5%	91%		
	Power Factor	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac		
	AC Current	3.0A/100Vac, 1.4A/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.					
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	Dimensions (mm)	249×68×41.3					
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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.						

## ■ Part number code

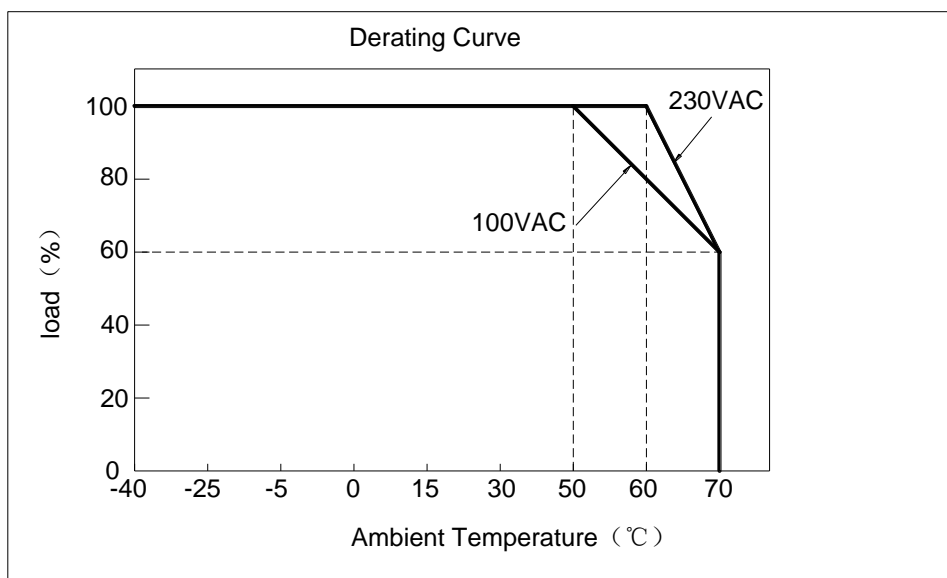
D	H	250	-	024	S	1000	A	-	TA
Lighting products		Output power(W): three numbers Filled 0 in front of it when less than 3.			Output voltage(V): three numbers Filled 0 in front of it when less than 3. For example: 143 means 143V, 024 means 24V		Output current(×10mA): three numbers Filled 0 in front of it when less than 3; four numbers are available if needed. For example: 1000 means 10000mA, 035 means 350mA		
E: Economic LED driver R: High performance LED driver H: High efficiency LED driver		Optional mode: two letters Default: no additional features TA: DALI dimming function, isolated output TC: 3 in 1 dimming function (PWM, resistance, voltage) TE: Customized timeshare dimming TF: Programmable timeshare dimming			Optional mode: one letter Default: no additional features A: output voltage and current can be adjusted		Output channel: one letter S: Single channel output    D: Double channel output T: Triple channel output    Q: Quadruple channel output F: Quintuple channel output    H: sextuple channel output		

For example: DH250-024S1000A-TA means: high efficiency LED driver; output power 250W; output voltage 24Vdc; output current 10000mA; single output; output voltage and current can be adjusted; with DALI dimming function and isolated output.

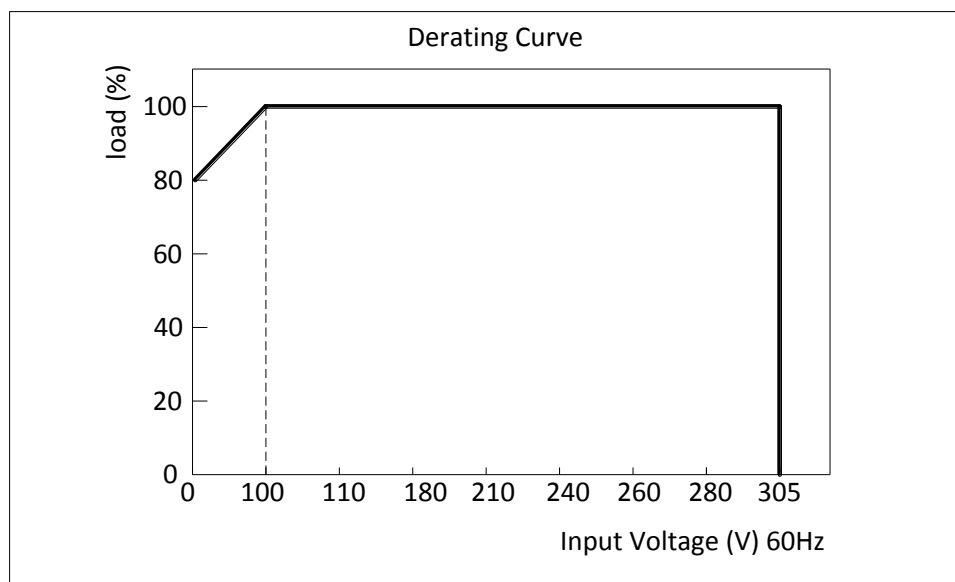
## ■ wiring diagram



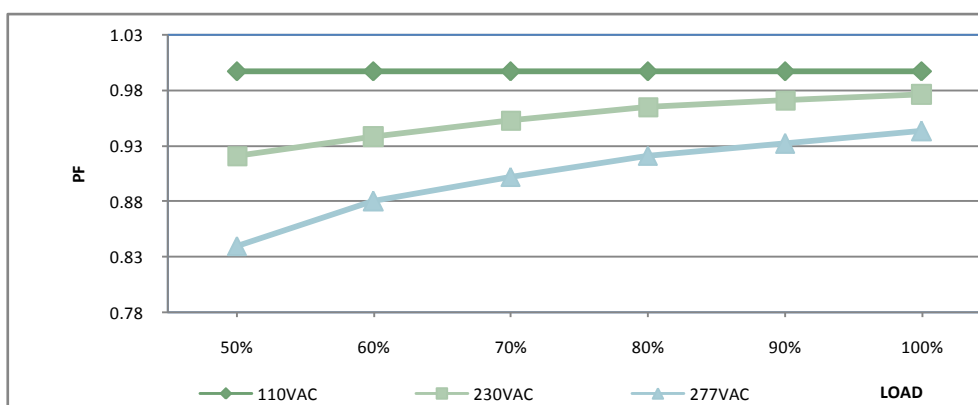
## ■ Derating Curve



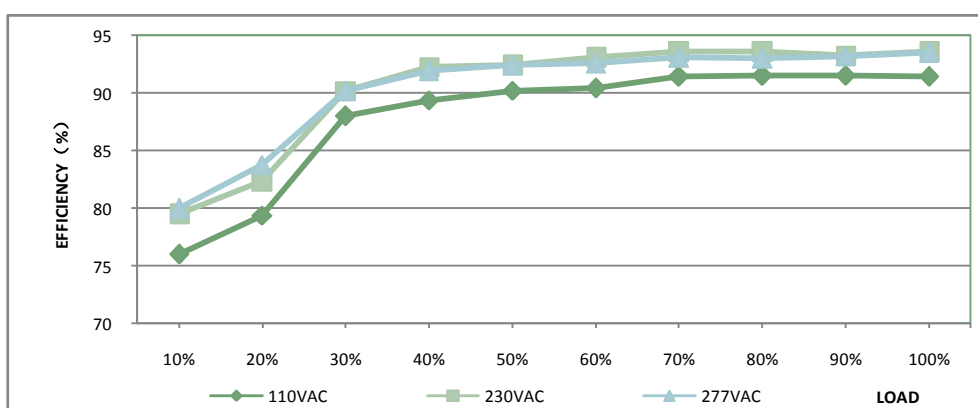
## ■ Static Characteristics



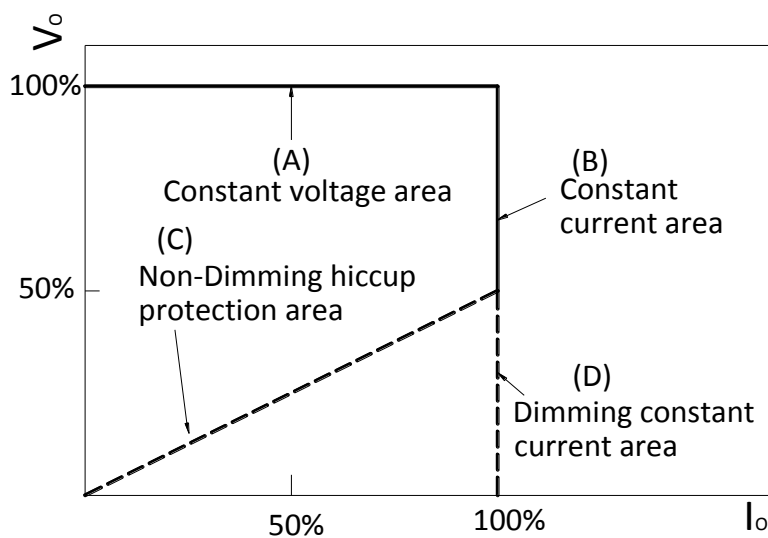
## ■ Power Factor Characteristic (DH250-024S1000)



## ■ EFFICIENCY vs LOAD (DH250-024S1000)



## ■ Typical LED power supply I-V curve

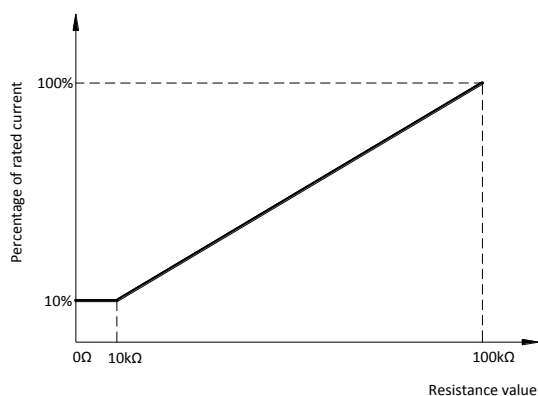




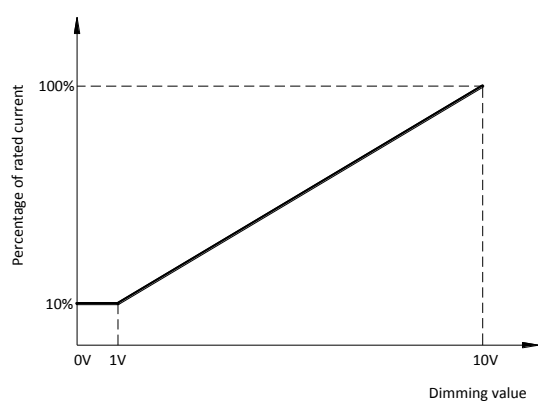


## ■ “-TC” option: 0-10V, resistance & PWM dimming

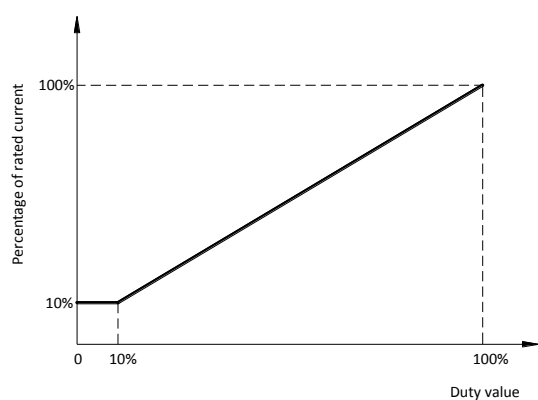
a. Reference resistance value for output current adjustment (Typical)



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:

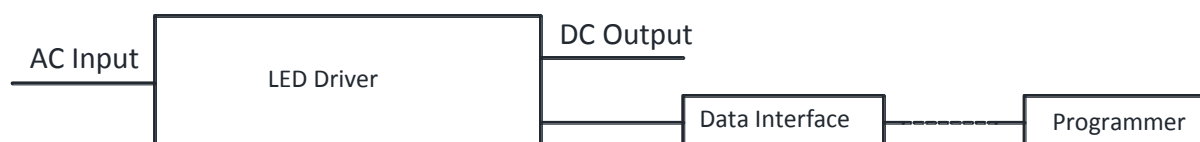
The first section: the time period is 0~1h, the output current is 40% of rated output current.

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.

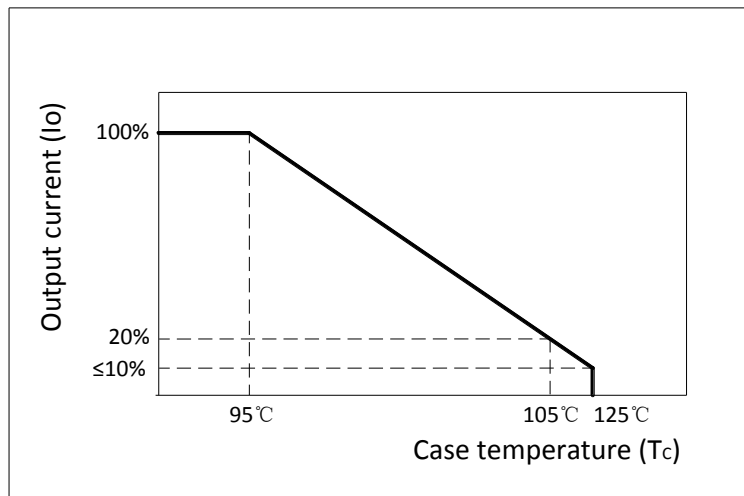
- The parameters are set by a programmer.
- The data interface is waterproof.



## ■ 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



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