



Features

- Wide input voltage range: 85-305Vac/100-430Vdc
- High efficiency up to 87.0%
- 3,000Vac input to output isolation
- Output over-current, over-voltage and short-circuit protections
- Operating temperature range: -40 to +70°C
- UL 60950-1 2nd edition recognized



Part Numbering System

AM	S	3G	xxx	-	xx	H	3
Series Name	No. of Output	Input Range	Output Voltage	-	Output Power	Package	Isolation Voltage
	S: Single	3G: 85-305Vac / 100-430Vdc	Example: 050: 5V		Example: 05: 5W	H: DIP	3: 3000Vac

Selection Guide

Part No.	Output Power (W)	Output		Efficiency(%) at typical input & full load	Max. Capacitance Load (µF)
		Voltage (Vdc)	Current (mA)		
AMS3G033-05H3	4	3.3	1250	72.0	4000
AMS3G050-05H3		5	1000	77.0	4000
AMS3G090-05H3		9	550	79.0	1800
AMS3G120-05H3		12	420	81.0	1800
AMS3G150-05H3		15	330	82.0	1500
AMS3G240-05H3	5.5	24	230	84.0	330
AMS3G033-10H3	6.6	3.3	2000	70.0	26000
AMS3G050-10H3		5	2000	76.0	9400
AMS3G090-10H3		9	1100	78.0	3600
AMS3G120-10H3		12	900	80.0	2400
AMS3G150-10H3		15	700	81.0	1200
AMS3G240-10H3		24	450	82.0	370

Selection Guide (Continued)

Part No.	Output Power (W)	Output		Efficiency(%) at typical input & full load	Max. Capacitance Load (µF)
		Voltage (Vdc)	Current (mA)		
AMS3G033-15H3	9.9	3.3	3000	74.0	36000
AMS3G050-15H3	14	5	2800	78.0	20000
AMS3G090-15H3	15	9	1600	79.0	6000
AMS3G120-15H3		12	1250	82.0	3000
AMS3G150-15H3		15	1000	82.0	3000
AMS3G240-15H3		24	625	84.0	900
AMS3G480-15H3		48	320	85.0	370
AMS3G033-20H3	11.55	3.3	3500	75.0	48000
AMS3G050-20H3	17.5	5	3500	78.0	12240
AMS3G090-20H3	20	9	2130	79.0	5600
AMS3G120-20H3		12	1600	83.0	5400
AMS3G150-20H3		15	1300	84.0	2400
AMS3G240-20H3		24	850	85.0	1840
AMS3G033-25H3	13.5	3.3	4100	75.0	48000
AMS3G050-25H3	20.5	5	4100	78.0	12240
AMS3G090-25H3	22.5	9	2500	79.0	5600
AMS3G120-25H3	25	12	2100	83.0	5400
AMS3G150-25H3	24	15	1600	84.0	2400
AMS3G240-25H3	26.4	24	1100	85.0	1440
AMS3G480-25H3	24	48	500	87.0	800

Input Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit		
Input Voltage Range	AC input	85	-	305	Vac		
	DC input	100	-	430	Vdc		
Input Frequency		47	-	63	Hz		
Input Current	115Vac input	AMS3Gxxx-05H3	-	-	125	mA	
		AMS3Gxxx-10H3	-	-	260		
		AMS3Gxxx-15H3	-	-	370		
		AMS3Gxxx-20H3 AMS3Gxxx-25H3	-	-	600		
	230Vac input	AMS3Gxxx-05H3	-	-	80		
		AMS3Gxxx-10H3	-	-	160		
		AMS3Gxxx-15H3	-	-	220		
		AMS3Gxxx-20H3 AMS3Gxxx-25H3	-	-	340		
Inrush Current	115Vac input	AMS3Gxxx-05H3 AMS3Gxxx-10H3	-	10	-	A	
		AMS3Gxxx-15H3 AMS3Gxxx-20H3 AMS3Gxxx-25H3	-	15	-		
		230Vac input	AMS3Gxxx-05H3 AMS3Gxxx-10H3	-	15		-
			AMS3Gxxx-15H3	-	20		-
	AMS3Gxxx-20H3 AMS3Gxxx-25H3		-	30	-		
	Leakage Current	230Vac input, 50Hz	-	-	0.3		mA
	Hot Plugging	Not supported					

Output Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit	
Output Voltage Accuracy	Full range load	-	±2	-	%	
Line Regulation		-	±0.5	-		
Load Regulation	Full range load	-	±1	-		
Temperature Coefficient		-	±0.02	-	%/°C	
Ripple & Noise	20MHz bandwidth	-	50	100	mVp-p	
Ripple Frequency	Full input range, full load	AMS3Gxxx-05H3	-	65	132	kHz
		AMS3Gxxx-10H3	-	100	-	
		AMS3Gxxx-15H3 AMS3Gxxx-20H3 AMS3Gxxx-25H3	-	65	-	
Over-voltage Protection	AMS3Gxxx-05H3	Over-voltage shutdown				Vdc
	AMS3Gxxx-10H3 AMS3Gxxx-15H3 AMS3Gxxx-20H3 AMS3Gxxx-25H3	3.3V/5V output	-	-	7.5	
		9V output	-	-	12	
		12V/15V output	-	-	20	
		24V output	-	-	30	
	48V output	-	-	60		
Over-current Protection	Full input range	≥110% Io, auto-recovery				
Short circuit Protection	Full input range	Hiccup mode, continuous, auto recovery				

Trim	AMS3Gxxx-20H3/ AMS3Gxxx-25H3	90		110	%
Minimum Load		0	-	-	%
Hold-up Time	115Vac input	-	15	-	ms
	230Vac input	-	80	-	

Safety and Environmental Specifications

Parameter	Notes & Conditions	Min	Typical	Max	Unit
Isolation Voltage	Input-Output: 1 minute	3,000	-	-	Vac
	Input-FG: 1 minute	2,000	-	-	
Operating Temperature		-40	-	+70	°C
Storage Temperature	AMS3Gxxx-05H3 AMS3Gxxx-10H3 AMS3Gxxx-15H3	-40	-	+105	°C
	AMS3Gxxx-20H3 AMS3Gxxx-25H3	-40	-	+85	
Storage Humidity	Non-condensing	-	-	95	%RH
Power Derating	-40°C ~ -10°C	2	-	-	% / °C
	+50°C ~ +70°C	AMS3Gxxx-25H3	3	-	
	+55°C ~ +70°C	Others	4	-	
Safety Class	AMS3Gxxx-15H3	Class II			
	Others	Class I			
MTBF	MIL-HDBK-217F @25°C	300	-	-	10 ³ hours

Note: Unless otherwise specified, data in this datasheet should be tested under the conditions of nominal input voltage, rated load and Ta=25°C.

Other Specifications

Parameter	Notes
Case Material	Black flame-retardant heat-proof plastic (UL94-V0)
Dimensions	Refer to dimensions
Weight	Refer to module weight
Cooling Method	Free air convection

EMC Specifications

Parameter	Notes & Conditions		
EMI	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV/ Air ±8KV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
		IEC/EN61000-4-4 ±4KV (see Figure 5)	perf. Criteria B
	Surge	IEC/EN61000-4-5 Line to Line ±1KV/ Line to Ground ±2KV	perf. Criteria B
		IEC/EN61000-4-5 Line to Line ±2KV/ Line to Ground ±4KV (see Figure 5)	perf. Criteria B
	CS	IEC/EN61000-4-6 10 Vrms	perf. Criteria A
PFM	IEC/EN61000-4-8 10A/m	perf. Criteria A	
Immunities of voltage dips, short interruptions and voltage variations	IEC/EN61000-4-11 0%, 70%	perf. Criteria B	

Characteristic Curves

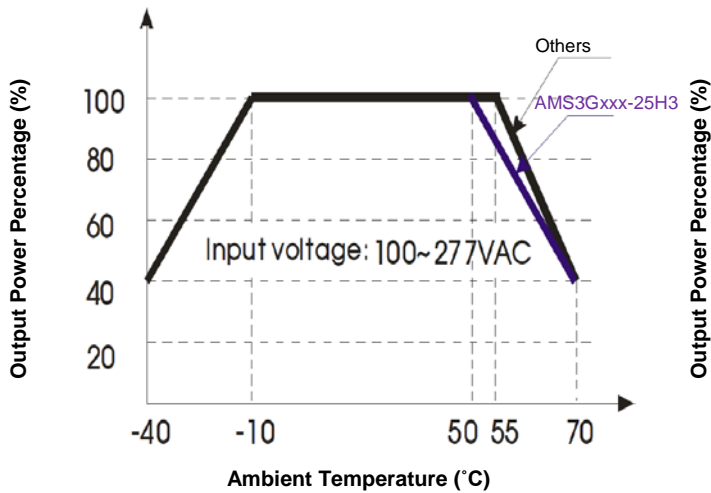


Figure 1. Temperature Derating Curve

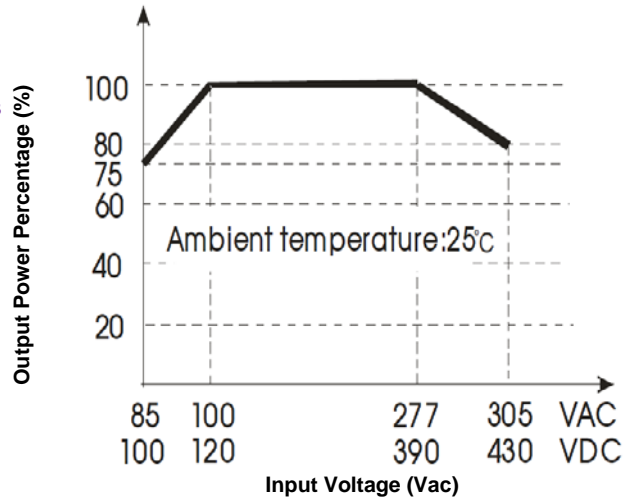


Figure 2. Input Voltage Derating Curve

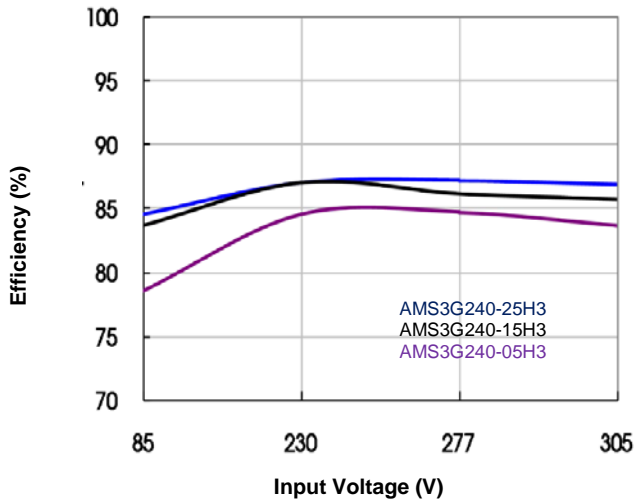


Figure 3. Efficiency vs. Input Voltage (full load)

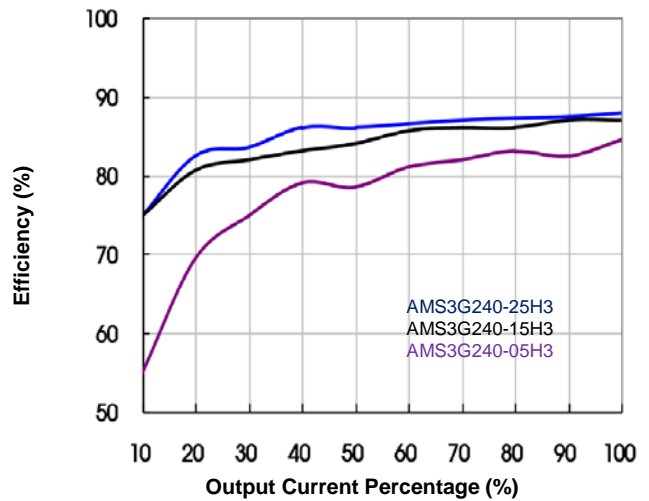
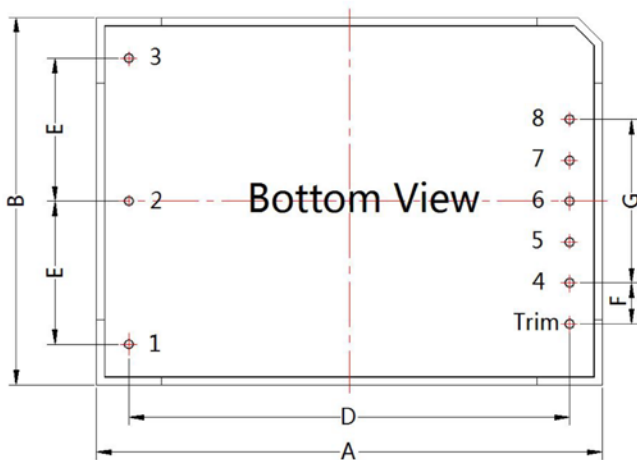
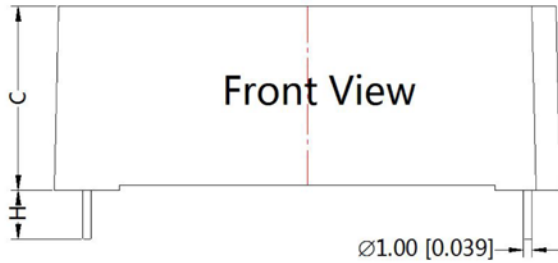


Figure 4. Efficiency vs. Output Load (Vin=230Vac)

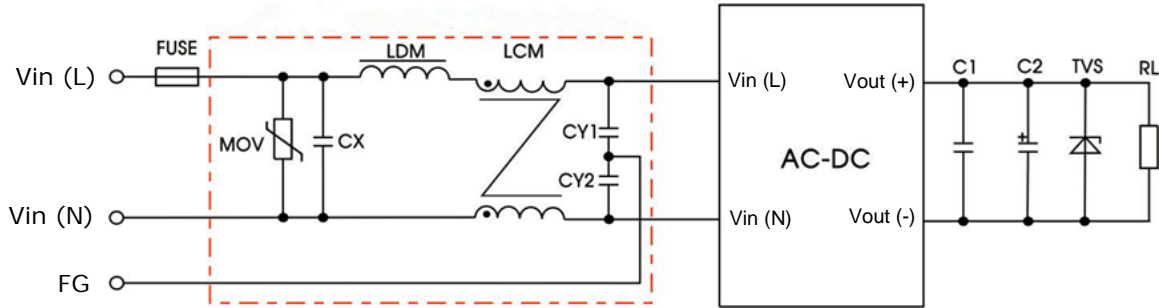
Mechanical Drawing


Dimensions (mm)					
No.	AMS3Gxxx-05H3	AMS3Gxxx-10H3	AMS3Gxxx-15H3	AMS3Gxxx-20H3	AMS3Gxxx-25H3
A	55.00	55.00	62.00	70.00	70.00
B	45.00	45.00	45.00	48.00	48.00
C	21.00	21.00	22.50	23.50	23.50
D	40.50	47.00	54.00	62.00	62.00
E	12.50	17.50	17.50	20.00	20.00
F	-	-	-	5.75	5.75
G	16.00	20.00	20.00	23.00	23.00
H	6(min.)				
Module Weight (g)					
Typ.	75	75	85	120	120

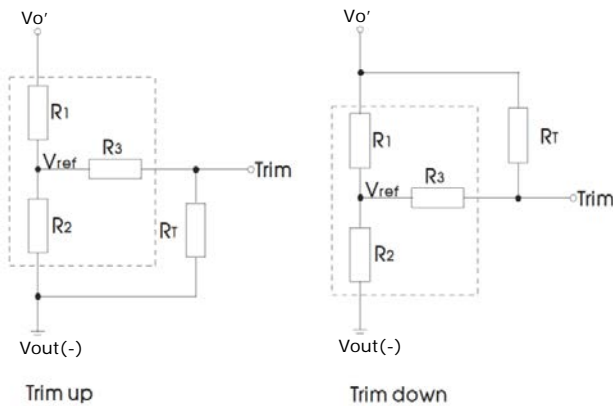
Pin	Name
1	FG
2	Vin (N)
3	Vin (L)
4	Vout (-)
5	No Pin
6	No Pin
7	No Pin
8	Vout (+)
Trim	Trim

Notes:

- 1) All dimension in mm(inches)
Tolerances: $\pm 0.50(\pm 0.020)$
- 2) Pin length ≥ 6.00
- 3) Pin diameter tolerances : $\pm 0.10(\pm 0.004)$
- 4) There is no Pin 1 for AMS3Gxxx-15H3.
- 5) Trim is only available for AMS3Gxxx-20H3 and AMS3Gxxx-25H3.

EMC Typical Application Circuit

Figure 5. EMC Recommended Circuit

Component	Recommended value	
MOV	S14K350	
CY1, CY2	100pF/400Vac	
CX	0.1μF/310Vac	
LCM	10mH	
LDM	4.7μH/2A	
FUSE	AMS3Gxxx-05H3	1A/300V slow fusing required
	AMS3Gxxx-10H3 AMS3Gxxx-15H3	2A/300V slow fusing required
	AMS3Gxxx-20H3 AMS3Gxxx-25H3	3.15A/300V slow fusing required

Trim Function


Formula of Trim Resistance:

$$\text{up: } R_T = \frac{\alpha R_2}{R_2 - \alpha} - R_3 \quad \alpha = \frac{V_{ref}}{V_{o'} - V_{ref}} \cdot R_1$$

$$\text{down: } R_T = \frac{\alpha R_1}{R_1 - \alpha} - R_3 \quad \alpha = \frac{V_{o'} - V_{ref}}{V_{ref}} \cdot R_2$$

Notes:

- R_T : Trim Resistor
- α : User-defined parameter, no actual meanings
- $V_{o'}$: The trim up/down voltage

Figure 6. Trim Function

V_{out}	$R_1(k\Omega)$	$R_2(k\Omega)$	$R_3(k\Omega)$	$V_{ref}(V)$	$V_o(V)$
3.3V	3.3	1.98	1	1.24	Output voltage after regulation, variation $\leq \pm 10\%$
5V	3.3	3.3	1	2.5	
9V	7.5	2.87	1	2.5	
12V	3.83	1	1	2.5	
15V	7.5	1.5	1	2.5	
24V	8.66	1	1	2.5	
48V	68	3.73	1	2.5	