

Fixed Input Isolated, Unregulated Series



D_M-1W Series

FIXED INPUT 1000VDC ISOLATED & UNREGULATED
TWIN OUTPUT, 1W DC-DC CONVERTER

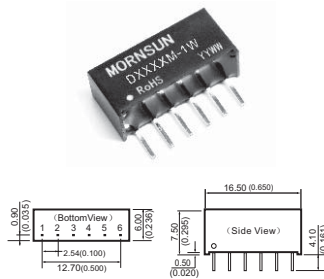
RoHS

FEATURES

- Temperature Range: -40°C ~ +85°C
- Small Footprint
- 1000VDC Isolation
- Internal SMD construction
- No External Component Required
- Industry Standard Pinout
- High Power Density

SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.5\%$ (max)
 Load regulation: 10% to 100% load (3.3V output).....20%(max)
 (Other output)....15%(max)
 Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth.....100mVp-p(max)
 Switching frequency: Full load, nominal input.....130KHz(typ)
 Storage temperature.....-55°C ~ +125°C
 Isolation resistance.....1000M Ω (min)
 MTBF.....3,500,000 hours(min)
 Cooling.....Free air convection

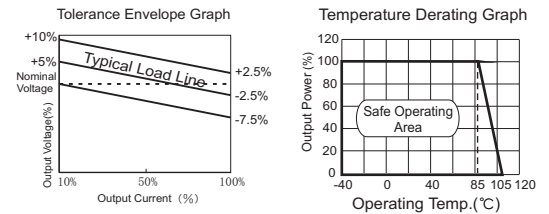


RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm (0.1inch)

Function	Vin	GND	0V1	+Vo1	0V2	+Vo2
D_M	1	2	3	4	5	6

D_M-1W SIZE: 16.50x6.0x7.50(mm)

TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %
D030505M-1W	3.3	2.97-3.63	5/5	100	70
D050303M-1W	5	4.5-5.5	3.3/3.3	100	62
D050505M-1W	5	4.5-5.5	5/5	100	71

YA1212D-1W & YB1212D-1W Series

FIXED INPUT, 12000VDC ISOLATED & UNREGULATED, DUAL/SINGLE OUTPUT,
1W DC-DC CONVERTER

RoHS

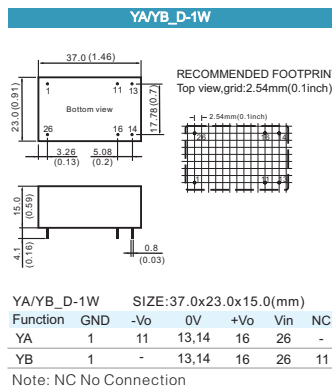
FEATURES

- Temperature Range: -40°C ~ +85°C
- 12KVDC Isolation
- Low Isolation capacitance
- Continuous short circuit protection
- No External Component Required



SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.5\%$ (max)
 Load regulation: 10% to 100% full load.....20%(max)
 Temperature drift: 100% full load..... $\pm 0.02\%/^{\circ}\text{C}$ (Max)
 Ripple & Noise: 20MHz Bandwidth.....200mVp-p(max)
 Isolation resistance.....1000M Ω (min)
 MTBF.....1,500,000 hours(min)
 Cooling.....Free air convection

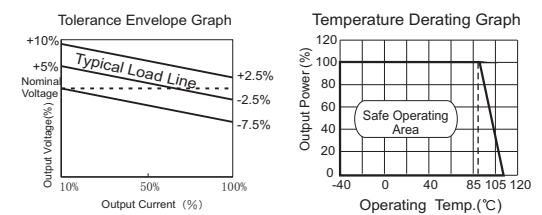


RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm (0.1inch)

Function	GND	-Vo	0V	+Vo	Vin	NC
YA	1	11	13,14	16	26	-
YB	1	-	13,14	16	26	11

Note: NC No Connection

TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %
YA1212D-1W	12	10.8-13.2	± 12	± 41.6	80
YB1212D-1W	12	10.8-13.2	12	83	80

AC-DC SERIES

DC-DC FIXED INPUT ISOLATED/UNREGULATED

DC-DC FIXED INPUT ISOLATED/REGULATED

DC-DC WIDE INPUT ISOLATED/REGULATED

DC-DC ULTRA-WIDE INPUT ISOLATED/REGULATED

DC-DC WIDE INPUT NON-ISOLATED/REGULATED

LED DRIVER

IGBT DRIVER

ISOLATION AMPLIFIER MODULE



Fixed Input Isolated, Unregulated Series

A_(X)T-1W & B_(X)T-1W/2W F_XT-1W/E_T-1W/F_T-1W Series

RoHS

FIXED INPUT, 1000VDC/3000VDC ISOLATED&UNREGULATED DUAL/SINGLE OUTPUT, ULTRAMINIATURE SMD PACKAGE 1W/2W DC-DC CONVERTER

FEATURES

- Temperature range: -40°C to +85°C
- Small footprint
- SMD package style
- No heat sink required
- High power density
- Internal SMD construction

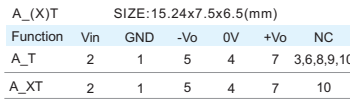
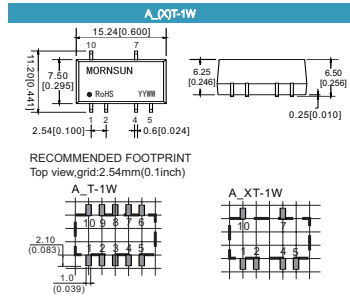


SPECIFICATIONS

Line regulation: For Vin change of ± 1%.....	± 1.2% (max)
Load regulation: 10% to 100% load (3.3V output).....	20% (max)
10% to 100% load (5V output).....	15% (max)
10% to 100% load (Other).....	10% (max)
Temperature drift: 100% full load.....	± 0.03%/°C (max)
Ripple & Noise: 20MHz Bandwidth (1W Single output).....	100mVp-p (max)
20MHz Bandwidth (2W Single output).....	200mVp-p (max)
20MHz Bandwidth (Dual output).....	75mVp-p (max)
Switching frequency: Full load, nominal input (5V, 12V).....	100KHz (typ)
Full load, nominal input (24V).....	500KHz (typ)
Storage temperature.....	-55°C ~ +125°C
MTBF.....	3,500,000 hours (min)
Cooling.....	Free air convection

A_(X)T-1W & B_(X)T-1W/2W 1000VDC Isolated

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate		
A0505(X)T-1W	5	4.5-5.5	±5	±100	71	UL		
A0509(X)T-1W			±9	±56	77	UL		
A0512(X)T-1W			±12	±42	78	UL		
A0515(X)T-1W			±15	±33	78	UL		
A1205(X)T-1W			±5	±100	71	UL		
A1209(X)T-1W	12	10.8-13.2	±9	±56	73	UL		
A1212(X)T-1W			±12	±42	74	UL		
A1215(X)T-1W			±15	±33	74	UL		
A2405(X)T-1W			±5	±100	72			
A2409(X)T-1W			±9	±56	74			
A2412(X)T-1W	24	21.6-26.4	±12	±42	76			
A2415(X)T-1W			±15	±33	77			
A2424(X)T-1W			±24	±21	78			
B0303(X)T-1W			3.3	3.0-3.6	3.3	303	73	UL
B0305(X)T-1W					5	200	74	UL
B0503(X)T-1W	3.3	303			72			
B0505(X)T-1W	5	200			77	UL CE		
B0509(X)T-1W	5	4.5-5.5			9	111	76	UL CE
B0512(X)T-1W			12	84	79	UL CE		
B0515(X)T-1W			15	67	78	UL CE		
B1205(X)T-1W			12	10.8-13.2	5	200	69	UL CE
B1209(X)T-1W					9	111	73	UL CE
B1212(X)T-1W	12	84			73	UL CE		
B1215(X)T-1W	15	67			74	UL CE		
B2403(X)T-1W	24	21.6-26.4			3.3	300	69	
B2405(X)T-1W			5	200	70			
B2409(X)T-1W			9	110	72			
B2412(X)T-1W			12	83	75			
B2415(X)T-1W			15	67	76			
B2424(X)T-1W	24	42	77					
B0505(X)T-2W	5	4.5-5.5	5	400	78			
B0512(X)T-2W			12	167	79			
B0515(X)T-2W			15	133	80			
B1205(X)T-2W			12	10.8-13.2	5	400	78	
B1212(X)T-2W					12	167	80	
B1215(X)T-2W	15	133			81			
B2405(X)T-2W	24	21.6-26.4			5	400	78	
B2412(X)T-2W					12	167	80	
B2415(X)T-2W			15	133	81			
B2424(X)T-2W			24	84	80			



A_(X)T SIZE: 15.24x7.5x6.5 (mm)

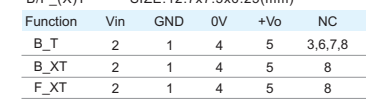
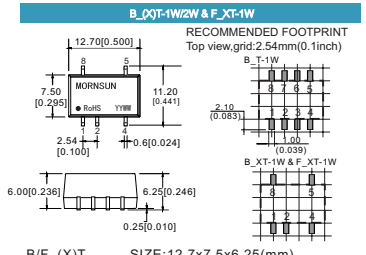
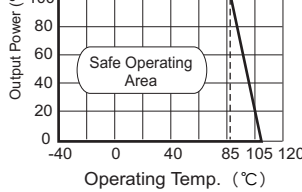
Function Vin GND -Vo OV +Vo NC

A_T 2 1 5 4 7 3,6,8,9,10

A_XT 2 1 5 4 7 10

Note: NC No Connection

TYPICAL TEMPERATURE CURVE



B/F_(X)T SIZE: 12.7x7.5x6.25 (mm)

Function Vin GND OV +Vo NC

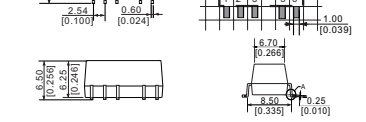
B_T 2 1 4 5 3,6,7,8

B_XT 2 1 4 5 8

F_XT 2 1 4 5 8

Note: NC No Connection

E_T-1W & F_T-1W



E/F_T SIZE: 15.24x7.5x6.5 (mm)

Function Vin GND -Vo +Vo NC

E_T 2 1 5 6 8 3,7,10,11,12

F_T 2 1 5 - 8 3,6,7,10,11,12

Note: NC No Connection

F_XT-1W & E_T-1W/F_T-1W 3000VDC Isolated

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate		
F0303XT-1W	3.3	3.0-3.6	3.3	303	73			
F0305XT-1W			5	200	74			
F0503XT-1W			3.3	303	72			
F0505XT-1W	5	4.5-5.5	5	200	77			
F0512XT-1W			12	83	79			
F0515XT-1W			15	67	78			
F1205XT-1W			12	10.8-13.2	5	200	69	
F1212XT-1W					12	83	73	
F1215XT-1W	15	67			74			
E0505T-1W	5	4.5-5.5			±5	±100	71	UL
E0512T-1W					±12	±42	78	UL
E0515T-1W			±15	±33	79	UL		
E1205T-1W			12	10.8-13.2	±5	±100	71	UL
E1212T-1W					±12	±42	74	UL
E1215T-1W	±15	±33			75	UL		
F0505T-1W	5	4.5-5.5			5	200	70	UL
F0512T-1W					12	84	78	UL
F0515T-1W			15	66	79	UL		
F1205T-1W			12	10.8-13.2	5	200	69	UL
F1212T-1W					12	84	73	UL
F1215T-1W	15	66			74	UL		

Fixed Input Isolated, Unregulated Series



B_RN-1W & B_RT-1W F_RN-1W & F_RT-1W Series

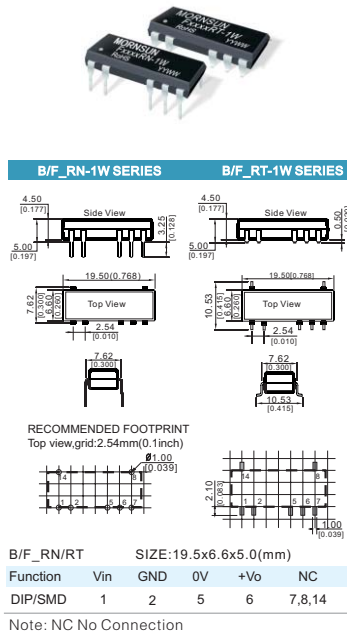
FIXED INPUT, 1500VDC/3000VDC ISOLATED & UNREGULATED
SINGLE OUTPUT, ULTRAMINIATURE SMD/DIP PACKAGE, 1W DC-DC CONVERTER

FEATURES

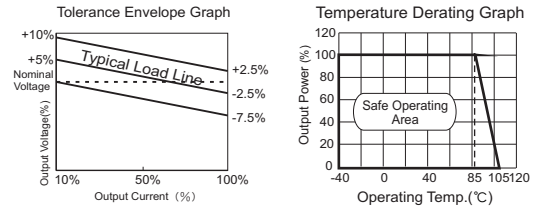
- Temperature Range: -40°C ~ +85°C
- 1W Mini ultra Thin package
- Isolation: B_RN/RT:1500VDC
F_RN/RT:3000VDC
- High Power Density
- No External Component Required
- Industry Standard Pinout
- Compatible with DCP01 Series
- Short circuit protection(automatic recovery)

SPECIFICATIONS

Line regulation: For Vin change of ±1%..... ±1.2%(max)
 Load regulation: 10% to 100% full load.....15%(max)
 Temperature drift: 100% full load..... ±0.03%/°C(max)
 Ripple & Noise: 20MHz Bandwidth.....75mVp-p(max)
 Switching frequency: Full load, nominal input....100KHz(typ)
 Storage temperature.....-55°C ~ +125°C
 Isolation resistance.....1000MΩ (min)
 MTBF.....3,500,000 hours(min)
 Cooling.....Free air convection
 Short circuit protection.....Continuous



TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %
B0505RN-1W	5	4.5-5.5	5	200	74
B0512RN-1W	5	4.5-5.5	12	83	77
B0515RN-1W	5	4.5-5.5	15	67	76
B1205RN-1W	12	10.8-13.2	5	200	73
* B1212RN-1W	12	10.8-13.2	12	83	76
* B1215RN-1W	12	10.8-13.2	15	67	75
B0505RT-1W	5	4.5-5.5	5	200	74
B0512RT-1W	5	4.5-5.5	12	83	77
B0515RT-1W	5	4.5-5.5	15	67	76
B1205RT-1W	12	10.8-13.2	5	200	73
* B1212RT-1W	12	10.8-13.2	12	83	76
* B1215RT-1W	12	10.8-13.2	15	67	75
* F0303RN-1W	3.3	3.0-3.6	3.3	300	68
* F0305RN-1W	5	4.5-5.5	5	200	70
* F0503RN-1W	5	4.5-5.5	3.3	300	70
F0505RN-1W	5	4.5-5.5	5	200	74
* F0303RT-1W	3.3	3.0-3.6	3.3	300	68
* F0305RT-1W	5	4.5-5.5	5	200	70
* F0503RT-1W	5	4.5-5.5	3.3	300	70
F0505RT-1W	5	4.5-5.5	5	200	74

Note: *** Designing

D_T-1W/2W Series

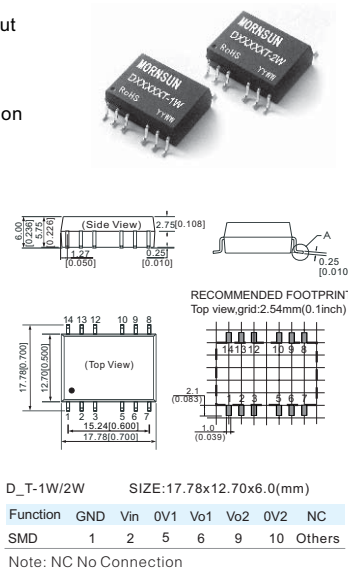
FIXED INPUT, 1000VDC ISOLATED & UNREGULATED
TWIN OUTPUT ULTRAMINIATURE SMD PACKAGE 1W/2W DC-DC CONVERTER

FEATURES

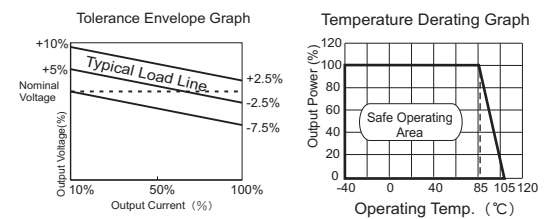
- Temperature Range: -40°C ~ +85°C
- Twin Independent Output
- Small Footprint
- High Power Density
- 1KVDC Isolation
- SMD Package Styles
- No External Component Required
- Internal SMD construction

SPECIFICATIONS

Line regulation: For Vin change of ±1%..... ±1.2%(max)
 Load regulation: 10% to 100% full load(5V output).....15%(max)
 10% to 100% full load(the others).....10%(max)
 Temperature drift: 100% full load..... ±0.03%/°C(max)
 Ripple & Noise : 20MHz Bandwidth.....1W:75mVp-p(max)
 2W:150mVp-p(max)
 Switching frequency: Full load, nominal input.....100KHz(typ)
 Storage temperature.....-55°C ~ +125°C
 Isolation resistance.....1000MΩ (min)
 MTBF.....3,500,000 hours(min)
 Cooling.....Free air convection



TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %
D050505T-1W	5	4.5-5.5	5/5	100/100	70
D051212T-1W	5	4.5-5.5	12/12	42/42	79
D051515T-1W	5	4.5-5.5	15/15	33/33	80
D120505T-1W	12	10.8-13.2	5/5	100/100	72
D121212T-1W	12	10.8-13.2	12/12	42/42	78
D121515T-1W	12	10.8-13.2	15/15	33/33	80
D050505T-2W	5	4.5-5.5	5/5	200/200	82
* D051212T-2W	5	4.5-5.5	12/12	84/84	84
* D051515T-2W	5	4.5-5.5	15/15	67/67	85
D120505T-2W	12	10.8-13.2	5/5	200/200	82
* D121212T-2W	12	10.8-13.2	12/12	84/84	84
* D121515T-2W	12	10.8-13.2	15/15	67/67	85

Note: *** Designing.



Fixed Input Isolated, Unregulated Series

H_LT-2W & H_RN-2W Series

RoHS EN60601-1

FIXED INPUT, 6000VDC ISOLATED & UNREGULATED, SINGLE OUTPUT, MEDICAL ULTRAMINIATURE SMD/DIP PACKAGE, 2W DC-DC CONVERTER

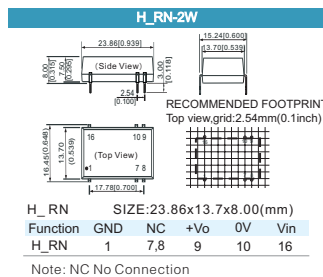
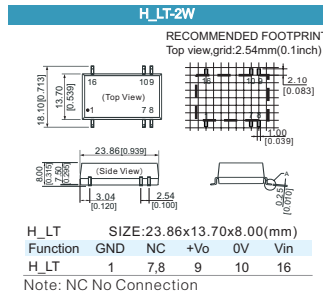
FEATURES

- Temperature Range: -40°C ~ +85°C
- SMD/DIP Package Style
- 6000VDC Isolation
- short circuit protection (self-restart)
- High Efficiency, Miniature barrier capacitors
- Industry Standard Pinout



SPECIFICATIONS

- Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.2\%$ (max)
 Load regulation: 10% to 100% load..... 15% (max)
 Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (Max)
 Ripple & Noise: 20MHz Bandwidth..... 150mVp-p (typ)
 Storage temperature..... -55°C ~ +125°C
 MTBF..... 3,500,000 hours (min)
 Cooling..... Free air convection
 Short circuit protection..... Continuous
 Isolation Capacitance..... 10PF (typ)



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA) Max.	Eff(TYP) %
H0505RN-2W	5	4.5-5.5	5	400	76
H0512RN-2W			12	167	79
H0515RN-2W			15	133	78
H1205RN-2W	12	10.8-13.2	5	400	76
H1212RN-2W			12	167	80
H1215RN-2W			15	133	79
H2405RN-2W	24	21.6-26.4	5	400	77
H2412RN-2W			12	167	80
H2415RN-2W			15	133	78
H0505LT-2W	5	4.5-5.5	5	400	76
H0512LT-2W			12	167	79
H0515LT-2W			15	133	78
H1205LT-2W	12	10.8-13.2	5	400	76
H1212LT-2W			12	167	80
H1215LT-2W			15	133	79
H2405LT-2W	24	21.6-26.4	5	400	77
H2412LT-2W			12	167	80
H2415LT-2W			15	133	78

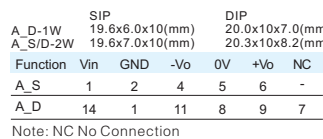
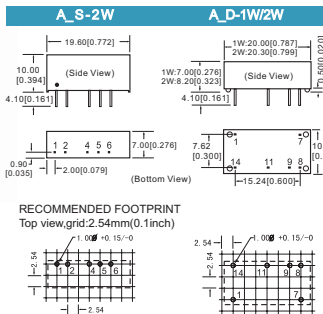
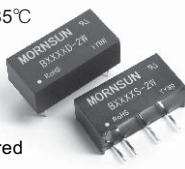
A_S-2W & A_D-1W/2W & B_LD-1W & B_S/D-2W Series

RoHS cULus CE

FIXED INPUT, 1000VDC ISOLATED & UNREGULATED, DUAL/SINGLE OUTPUT, 1W/2W DC-DC CONVERTER

FEATURES

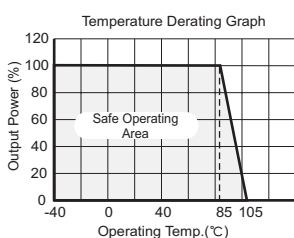
- Temperature Range: -40°C ~ +85°C
- SIP/DIP Package
- 1000VDC Isolation
- No Heatsink Required
- No External Component Required
- Industry Standard Pinout
- High power density
- Internal SMD Construction



SPECIFICATIONS

- Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.2\%$ (max)
 Load regulation: 10% to 100% load..... 15% (max)
 Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth (A_D-1W)..... 50mVp-p (typ)
 20MHz Bandwidth (24V Output)..... 100mVp-p (typ)
 20MHz Bandwidth (Other)..... 75mVp-p (typ)
 Switching frequency: Full load, nominal input..... 100KHz (typ)
 Storage Temp. Range..... -55°C ~ +125°C
 Isolation resistance..... 1000M Ω (min)
 MTBF..... 3,500,000 hours (min)
 Cooling..... Free air convection

TYPICAL TEMPERATURE CURVE



A_D-1W & B_LD-1W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificat
A0505D-1W	5	4.5-5.5	± 5	± 100	72	UL
A0512D-1W			± 12	± 42	79	UL
A0515D-1W			± 15	± 33	80	UL
A1205D-1W	12	10.8-13.2	± 5	± 100	72	UL
A1212D-1W			± 12	± 42	79	UL
A1215D-1W			± 15	± 33	78	UL
A2405D-1W	24	21.6-26.4	± 5	± 100	73	UL
A2412D-1W			± 12	± 42	80	UL
A2415D-1W			± 15	± 33	80	UL
B0505LD-1W	5	4.5-5.5	5	200	70	UL CE
B0512LD-1W			12	83	78	UL CE
B0515LD-1W			15	67	80	UL CE
B1205LD-1W	12	10.8-13.2	5	200	71	UL CE
B1212LD-1W			12	83	78	UL CE
B1215LD-1W			15	67	79	UL CE
B2405LD-1W	24	21.6-26.4	5	200	73	UL CE
B2412LD-1W			12	83	78	UL CE
B2415LD-1W			15	67	79	UL CE
B2424LD-1W	24	42	78			

A_S/D-2W & B_S/D-2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificat
A0505S/D-2W	5	4.5-5.5	± 5	± 200	82	UL
A0512S/D-2W			± 12	± 83	86	UL
A0515S/D-2W			± 15	± 67	82	UL
A1205S/D-2W	12	10.8-13.2	± 5	± 200	81	UL
A1212S/D-2W			± 12	± 83	86	UL
A1215S/D-2W			± 15	± 67	82	UL
A2405S/D-2W	24	21.6-26.4	± 5	± 200	80	UL
A2412S/D-2W			± 12	± 83	84	UL
A2415S/D-2W			± 15	± 67	84	UL
A2424S/D-2W	± 24	± 42	85			
B0505S/D-2W	5	4.5-5.5	5	400	81	UL CE
B0512S/D-2W			12	167	83	UL CE
B0515S/D-2W			15	133	84	UL CE
B1205S/D-2W	12	10.8-13.2	5	400	81	UL CE
B1212S/D-2W			12	167	85	UL CE
B1215S/D-2W			15	133	82	UL CE
B2405S/D-2W	24	21.6-26.4	5	400	80	UL CE
B2412S/D-2W			12	167	84	UL CE
B2415S/D-2W			15	133	84	UL CE
B2424S/D-2W	24	84	84			

Fixed Input Isolated, Unregulated Series



A_S-1WR & B_LS-1WR Series

FIXED INPUT, 1000VDC ISOLATED&UNREGULATED, DUAL/SINGLE OUTPUT, ULTRAMINIATURE ENCAPSULATED SIP PACKAGE, 1W DC-DC CONVERTER

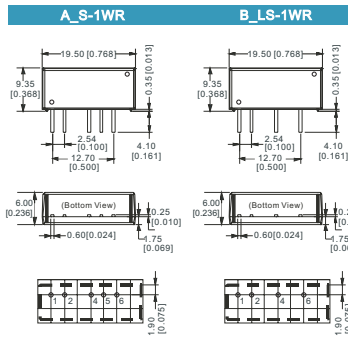
RoHS

FEATURES

- Temperature Range: -40°C ~ +85°C
- Encapsulated SIP Package
- Continuous short circuit protection
- Low isolation capacitance
- 1000VDC Isolation
- No External Component Required
- Industry Standard Pinout

SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.5\%$ (max)
 Load regulation: 10% to 100% load.....20%(max)
 Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth.....200mVp-p(max)
 Switching frequency: Full load, nominal input...100KHz(typ)
 Storage temperature.....-55°C ~ +125°C
 MTBF.....1,940,000 hours(min)
 Cooling.....Free air convection
 Short circuit protection.....Continuous



A_S-1WR & B_LS-1WR SIZE: 19.5x9.35x6.0(mm)

Function	Vin	GND	0V	-Vo	+Vo
A_S-1WR	1	2	5	4	6
B_LS-1WR	1	2	4	-	6

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout(mA) Max.	Eff(TYP) %
A0505S-1WR	5	4.5-5.5	± 5	± 100	69
A0512S-1WR			± 12	± 42	74
A0515S-1WR			± 15	± 34	74
B0505LS-1WR	5	4.5-5.5	5	200	73
B0512LS-1WR			12	83	75
B0515LS-1WR			15	67	75
B0524LS-1WR			24	42	76
A1205S-1WR	12	10.8-13.2	± 5	± 100	70
A1212S-1WR			± 12	± 42	75
A1215S-1WR			± 15	± 34	76
B1205LS-1WR	12	10.8-13.2	5	200	73
B1212LS-1WR			12	83	75
B1215LS-1WR			15	67	76
A2405S-1WR	24	21.6-26.4	± 5	± 100	68
A2412S-1WR			± 12	± 42	75
A2415S-1WR			± 15	± 34	76
B2403LS-1WR			3.3	303	70
B2405LS-1WR			5	200	70
B2412LS-1WR			12	83	75
B2415LS-1WR	15	67	76		

E_S-1WR & F_S-1WR Series

FIXED INPUT, 3000VDC ISOLATED&UNREGULATED, DUAL/SINGLE OUTPUT, ULTRAMINIATURE ENCAPSULATED SIP PACKAGE, 1W DC-DC CONVERTER

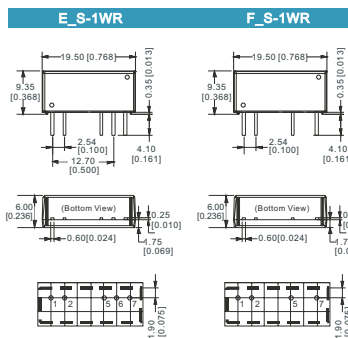
RoHS

FEATURES

- Temperature Range: -40°C ~ +85°C
- Encapsulated SIP Package
- Continuous short circuit protection
- Low isolation capacitance
- 3000VDC Isolation
- No External Component Required
- Industry Standard Pinout

SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.5\%$ (max)
 Load regulation: 10% to 100% load.....20%(max)
 Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth.....200mVp-p(max)
 Switching frequency: Full load, nominal input...100KHz(typ)
 Storage temperature.....-55°C ~ +125°C
 MTBF.....1,940,000 hours(min)
 Cooling.....Free air convection
 Short circuit protection.....Continuous



E_S-1WR & F_S-1WR SIZE: 19.5x9.35x6.0(mm)

Function	Vin	GND	0V	-Vo	+Vo
E_S-1WR	1	2	6	5	7
F_S-1WR	1	2	5	-	7

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout(mA) Max.	Eff(TYP) %
*F0303S-1WR	3.3	3.0-3.6	3.3	303	68
F0305S-1WR			5	200	70
E0505S-1WR	5	4.5-5.5	± 5	± 100	69
E0512S-1WR			± 12	± 42	74
E0515S-1WR			± 15	± 34	74
F0505S-1WR			5	200	73
F0512S-1WR	5	4.5-5.5	12	83	75
F0515S-1WR			15	67	75
F0524S-1WR			24	42	76
E1205S-1WR			± 5	± 100	70
E1212S-1WR			± 12	± 42	76
E1215S-1WR			± 15	± 34	76
F1205S-1WR	12	10.8-13.2	5	200	73
F1212S-1WR			12	83	75
F1215S-1WR			15	67	76
E2405S-1WR	24	21.6-26.4	± 5	± 100	68
E2412S-1WR			± 12	± 42	75
E2415S-1WR			± 15	± 34	76
F2403S-1WR			3.3	303	70
F2405S-1WR			5	200	70
F2412S-1WR			12	83	75
F2415S-1WR	15	67	76		

AC-DC SERIES
 DC-DC FIXED INPUT ISOLATED/UNREGULATED
 DC-DC FIXED INPUT ISOLATED/REGULATED
 DC-DC WIDE INPUT ISOLATED/REGULATED
 DC-DC ULTRA-WIDE INPUT ISOLATED/REGULATED
 DC-DC WIDE INPUT NON-ISOLATED/REGULATED
 LED DRIVER
 IGBT DRIVER
 ISOLATION AMPLIFIER MODULE



Fixed Input Isolated, Unregulated Series

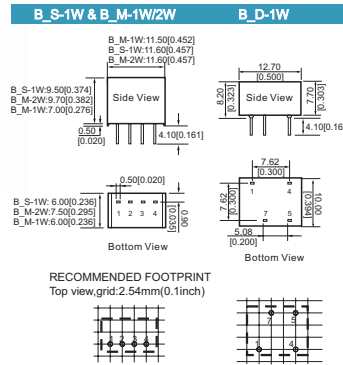
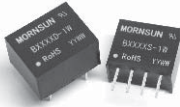
B_S/D-1W & B_M-1W/2W Series

RoHS

FIXED INPUT, 1000VDC ISOLATED&UNREGULATED, SINGLE OUTPUT, ULTRAMINIATURE, DC-DC CONVERTER

FEATURES

- Temperature Range: -40°C ~ +85°C
- Miniature SIP/DIP Package Style
- 1KVDC Isolation
- No External Component Required
- Internal SMD construction
- No Heat sink Required
- Industry Standard Pinout



RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm(0.1inch)

B_S-1W SIZE: 11.60x6.0x10.00(mm)
B_D-1W SIZE: 12.70x10.0x8.20(mm)
B_M-1W SIZE: 11.50x6.00x7.50(mm)
B_M-2W SIZE: 11.60x7.50x10.2(mm)

Function	GND	Vin	0V	+Vo
B_S & B_M	1	2	3	4
B_D	1	4	7	5

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
B0303S/D-1W	3.3	2.97-3.63	3.3	303	72	
B0305S/D-1W			5	200	74	
B0505S/D-1W			5	200	70	UL CE
B0512S/D-1W	5	4.5-5.5	12	83	79	UL CE
B0515S/D-1W			15	67	80	UL CE
B1205S/D-1W			5	200	71	UL CE
B1212S/D-1W	12	10.8-13.2	12	83	78	UL CE
B1215S/D-1W			15	67	80	UL CE
B2405S/D-1W			5	200	73	UL CE
B2412S/D-1W	24	21.6-26.4	12	83	79	UL CE
B2415S/D-1W			15	67	80	UL CE
B0303M-1W	3.3	3.0-3.6	3.3	303	69	
B0305M-1W			5	200	74	
B0505M-1W			5	200	70	
B0512M-1W	5	4.5-5.5	12	83	77	
B0515M-1W			15	67	78	
B1205M-1W			5	200	70	
B1212M-1W	12	10.8-13.2	12	83	77	
B1215M-1W			15	67	78	
B0505M-2W			5	400	78	
B0512M-2W	5	4.5-5.5	12	167	79	
B0515M-2W			15	133	79	
B1205M-2W			5	400	78	
B1212M-2W	12	10.8-13.2	12	167	80	
B1215M-2W			15	133	82	

SPECIFICATIONS

Line regulation: For Vin change of $\pm 1\%$ (3.3V)..... $\pm 1.5\%$ (max)
For Vin change of $\pm 1\%$ (Other)..... $\pm 1.2\%$ (max)
Load regulation: 10% to 100% load(3.3V)..... 20%(max)
10% to 100% load(other)..... 15%(max)
Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
Ripple & Noise: 20MHz Bandwidth..... 75mVp-p(typ)
Switching frequency: Full load, nominal input..... 100KHz(typ)
Storage temperature..... -55°C ~ +125°C
Isolation resistance..... 1000M Ω (min)
MTBF..... 3,500,000 hours(min)
Cooling..... Free air convection

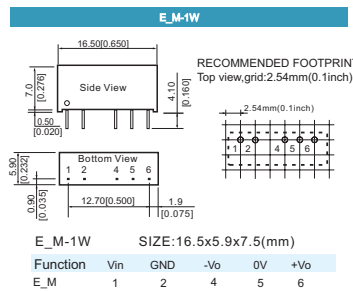
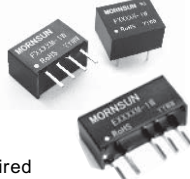
E_M-1W & F_M/N-1W Series

RoHS

FIXED INPUT, 3000VDC ISOLATED&UNREGULATED, DUAL/SINGLE OUTPUT, ULTRAMINIATURE, 1W DC-DC CONVERTER

FEATURES

- Temperature Range: -40°C ~ +85°C
- 3000VDC Isolation
- Ultraminiature Size
- High power density
- No Heatsink Required
- Internal SMD construction
- No External Component Required
- Industry Standard Pinout



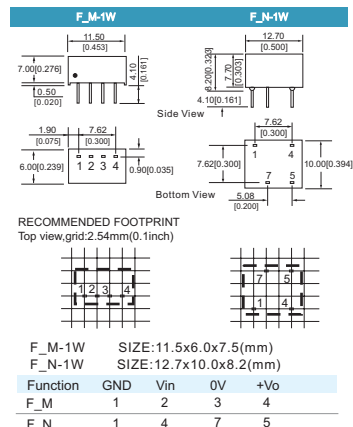
RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm(0.1inch)

E_M-1W SIZE: 16.5x5.9x7.5(mm)

Function	Vin	GND	-Vo	0V	+Vo
E_M	1	2	4	5	6

SPECIFICATIONS

Line regulation: For Vin change of $\pm 1\%$ $\pm 1.2\%$ (max)
Load regulation: 10% to 100% load..... 15%(max)
Temperature drift: 100% full load..... $\pm 0.03\%/^{\circ}\text{C}$ (max)
Ripple & Noise: 20MHz Bandwidth..... E_M: 75mVp-p(max)
20MHz Bandwidth..... F_M/N: 150mVp-p(max)
Switching frequency: Full load, nominal input... 100KHz(typ)
Storage Temperature..... -55°C ~ +125°C
Isolation resistance..... 1000M Ω (min)
MTBF..... 3,500,000 hours(min)
Cooling..... Free air convection

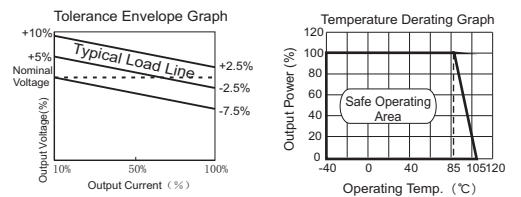


RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm(0.1inch)

F_M-1W SIZE: 11.5x6.0x7.5(mm)
F_N-1W SIZE: 12.7x10.0x8.2(mm)

Function	GND	Vin	0V	+Vo
F_M	1	2	3	4
F_N	1	4	7	5

TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %
E0505M-1W			± 5	± 100	72
E0512M-1W	5	4.5-5.5	± 12	± 42	78
E0515M-1W			± 15	± 33	79
E1205M-1W			± 5	± 100	71
E1212M-1W	12	10.8-13.2	± 12	± 42	74
E1215M-1W			± 15	± 33	75
F0505M/N-1W			5	200	69
F0512M/N-1W	5	4.5-5.5	12	83	78
F0515M/N-1W			15	67	78
F1205M/N-1W			5	200	71
F1212M/N-1W	12	10.8-13.2	12	83	78
F1215M/N-1W			15	67	79

Fixed Input Isolated, Unregulated Series



D_(N)S/D-1W & D_S-2W Series

RoHS


FIXED INPUT, 1000VDC ISOLATED & UNREGULATED, ISOLATED TWIN OUTPUT, 1W/2W, DC-DC CONVERTER

FEATURES

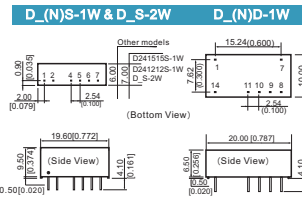
- Temperature Range: -40°C ~ +85°C
- Ultraminiature Size
- 1KVDC Isolation
- No External Component Required
- Internal SMD Construction

SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.2\%$ (max)
 Load regulation: 10% to 100% load (2W: 12V, 15V, 24V Output) .. 10% (max)
 10% to 100% load (Other) 15% (max)
 Temperature drift: 100% full load $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth (1W) 75mVp-p (max)
 20MHz Bandwidth (2W) 150mVp-p (max)
 Switching frequency: Full load, nominal input 1W: 100KHz (typ)
 Full load, nominal input 2W: 70KHz (typ)
 Storage temperature -55°C ~ +125°C
 Isolation resistance 1000M Ω (min)
 MTBF 3,500,000 hours (min)
 Cooling Free air convection



D_(N)S-1W & D_S-2W D_(N)D-1W



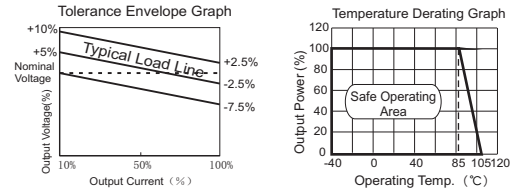
RECOMMENDED FOOTPRINT
 Top view, grid: 2.54mm (0.1inch)

D_(N)S-1W SIZE: 19.6x6.0x10.0 (mm)
 D_S-2W SIZE: 19.6x7.0x10.0 (mm)
 D_(N)D-1W SIZE: 20.0x10.0x7.0 (mm)

Function	Vin	GND	0V1	+Vo1	0V2	+Vo2	NC
D_S	1	2	4	5	6	7	-
D_D	14	1	11	10	9	8	7
D_NS	1	2	5	4	7	6	-
D_ND	14	1	10	11	8	9	7

Note: NC No Connection

TYPICAL CHARACTERISTICS



Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
D050505(N)S/D-1W	5	4.5-5.5	5/5	100	70	UL
D051212(N)S/D-1W			12/12	42	77	UL
D051515(N)S/D-1W			15/15	33	78	UL
D120505(N)S/D-1W	12	10.8-13.2	5/5	100	72	UL
D121212(N)S/D-1W			12/12	42	78	UL
D121515(N)S/D-1W			15/15	33	80	UL
D240505(N)S/D-1W	24	21.6-26.4	5/5	100	71	UL
D241212(N)S/D-1W			12/12	42	76	UL
D241515(N)S/D-1W			15/15	33	76	UL
D050505S-2W	5	4.5-5.5	5/5	200	80	UL
D051212S-2W			12/12	83	82	UL
D051515S-2W			15/15	67	83	UL
D120505S-2W	12	10.8-13.2	5/5	200	80	UL
D121212S-2W			12/12	83	85	UL
D121515S-2W			15/15	67	83	UL
D240505S-2W	24	21.6-26.4	5/5	200	81	UL
D241212S-2W			12/12	83	84	UL
D241515S-2W			15/15	67	84	UL

Note: D_NS/ND-1W series :UL pending.

E_D-1W/2W & F_D-1W/2W & E_S-2W & F_S-2W Series

RoHS

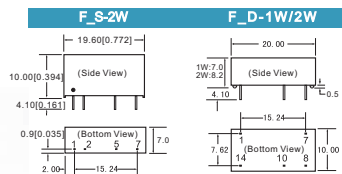
FIXED INPUT, 3000VDC ISOLATED & UNREGULATED, DUAL/SINGLE OUTPUT, 1W/2W DC-DC CONVERTER

FEATURES

- Temperature Range: -40°C ~ +85°C
- High Density, High Stability
- SIP/DIP Package
- 3000VDC Isolation
- No Heatsink Required
- No External Component Required
- Industry Standard Pinout
- Internal SMD construction



F_S-2W F_D-1W/2W



RECOMMENDED FOOTPRINT
 Top view, grid: 2.54mm (0.1inch)

SIP DIP
 F_D-1W 19.6x7.0x10.0 (mm)
 F_S/D-2W 20.0x10x7.0 (mm)
 20.0x10x8.2 (mm)

Function	Vin	GND	0V	+Vo	NC
F_S	1	2	5	7	-
F_D	14	1	10	8	7

Note: NC No Connection

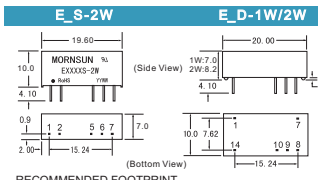
E_D-1W & F_D-1W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
E0505D-1W	5	4.5-5.5	± 5	± 100	71	UL CE
E0512D-1W			± 12	± 42	77	UL CE
E0515D-1W			± 15	± 33	79	UL CE
E1205D-1W	12	10.8-13.2	± 5	± 100	73	UL CE
E1212D-1W			± 12	± 42	80	UL CE
E1215D-1W			± 15	± 33	80	UL CE
E2405D-1W	24	21.6-26.4	± 5	± 100	73	UL CE
E2412D-1W			± 12	± 42	80	UL CE
E2415D-1W			± 15	± 33	80	UL CE
F0505D-1W	5	4.5-5.5	5	200	72	UL CE
F0512D-1W			12	84	79	UL CE
F0515D-1W			15	67	78	UL CE
F1205D-1W	12	10.8-13.2	5	200	70	UL CE
F1212D-1W			12	84	78	UL CE
F1215D-1W			15	67	79	UL CE
F2405D-1W	24	21.6-26.4	5	200	71	UL CE
F2412D-1W			12	84	78	UL CE
F2415D-1W			15	67	80	UL CE

SPECIFICATIONS

Line regulation: For V_{in} change of $\pm 1\%$ $\pm 1.2\%$ (max)
 Load regulation (10% to 100% load) 15% (max)
 Temperature drift: 100% full load $\pm 0.03\%/^{\circ}\text{C}$ (max)
 Ripple & Noise: 20MHz Bandwidth, (E_D-1W) 50mVp-p (typ)
 20MHz Bandwidth, (Other) 75mVp-p (typ)
 Switching frequency: Full load, nominal input (1W) ... 100KHz (typ)
 Full load, nominal input (2W) ... 70KHz (typ)
 Storage temperature -55°C ~ +125°C
 Isolation resistance 1000M Ω (min)
 MTBF 3,500,000 hours (min)
 Cooling Free air convection

E_S-2W E_D-1W/2W



RECOMMENDED FOOTPRINT
 Top view, grid: 2.54mm (0.1inch)

SIP DIP
 E_D-1W 19.6x7.0x10.0 (mm)
 E_S/D-2W 20.0x10x7.0 (mm)
 20.0x10x8.2 (mm)

Function	Vin	GND	-Vo	0V	+Vo	NC
E_S	1	2	5	6	7	-
E_D	14	1	10	9	8	7

Note: NC No Connection

E_S/D-2W & F_S/D-2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
E0505S/D-2W	5	4.5-5.5	± 5	± 200	82	UL CE
E0512S/D-2W			± 12	± 83	84	UL CE
E0515S/D-2W			± 15	± 67	82	UL CE
E1205S/D-2W	12	10.8-13.2	± 5	± 200	80	UL CE
E1212S/D-2W			± 12	± 83	85	UL CE
E1215S/D-2W			± 15	± 67	82	UL CE
E2405S/D-2W	24	21.6-26.4	± 5	± 200	82	UL CE
E2412S/D-2W			± 12	± 83	85	UL CE
E2415S/D-2W			± 15	± 67	85	UL CE
F0505S/D-2W	5	4.5-5.5	5	400	81	UL CE
F0512S/D-2W			12	167	83	UL CE
F0515S/D-2W			15	133	83	UL CE
F1205S/D-2W	12	10.8-13.2	5	400	80	UL CE
F1212S/D-2W			12	167	83	UL CE
F1215S/D-2W			15	133	83	UL CE
F2405S/D-2W	24	21.6-26.4	5	400	80	UL CE
F2412S/D-2W			12	167	83	UL CE
F2415S/D-2W			15	133	84	UL CE

AC-DC SERIES
 DC-DC FIXED INPUT ISOLATED/UNREGULATED
 DC-DC FIXED INPUT ISOLATED/REGULATED
 DC-DC WIDE INPUT ISOLATED/REGULATED
 DC-DC ULTRA-WIDE INPUT ISOLATED/REGULATED
 DC-DC WIDE INPUT NON-ISOLATED/REGULATED
 LED DRIVER
 IGBT DRIVER
 ISOLATION AMPLIFIER MODULE



Fixed Input Isolated, Unregulated Series

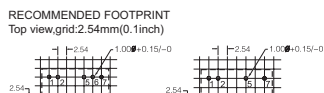
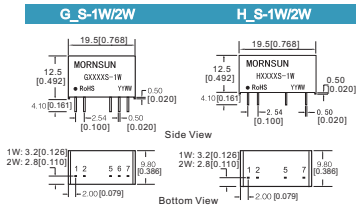
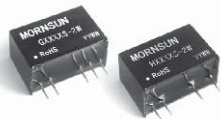
H/G_S-1W & H/G_S-2W Series

FIXED INPUT, 6000VDC ISOLATED&UNREGULATED, MEDICAL
DUAL/SINGLE OUTPUT, 1W/2W DC-DC CONVERTER

RoHS EN60601-1
(Partial)

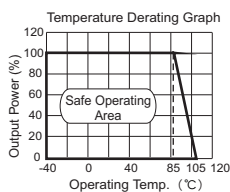
FEATURES

- Temperature Range: -40°C ~ +85°C
- 6KVDC Isolation
- High power density
- Low Isolation capacitance
- Internal SMD Construction
- Continuous short circuit protection(1W 5V except)
- SIP Package; Industry Standard Pinout
- Medical application compliance



Function	Vin	GND	-Vo	0V	+Vo
G_S	1	2	5	6	7
H_S	1	2	-	5	7

TYPICAL TEMPERATURE CURVE



SPECIFICATIONS

- Line regulation: For Vin change of ±1%..... ± 1.2%(max)
 Load regulation: 10% to 100% load.....15%(max)
 Temperature drift: 100% full load..... ± 0.03%/°C(max)
 Ripple & Noise: 20MHz Bandwidth(1W).....200mVp-p(max)
 20MHz Bandwidth(2W).....250mVp-p(max)
 Switching frequency: 100% Full load nominal input(5V).....250KHz (1W)
 100% Full load nominal input(5V).....45KHz (2W)
 100% Full load nominal input(12V/24V)..50KHz
 Storage temperature.....-55°C ~ +125°C
 Isolation resistance.....1000MΩ(min)
 Isolation Capacitance.....10pF(max)
 MTBF.....3,500,000 hours(min)
 Cooling.....Free air convection

H_S-1W/2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
H0505S-1W			5	200	70	UL
H0512S-1W	5	4.5-5.5	12	84	73	UL
H0515S-1W			15	67	74	UL
H1205S-1W			5	200	70	UL
H1212S-1W	12	10.8-13.2	12	84	72	UL
H1215S-1W			15	67	74	UL
H0505S-2W			5	400	74	EN60601-1
H0512S-2W	5	4.5-5.5	12	167	77	EN60601-1
H0515S-2W			15	133	77	EN60601-1
H1205S-2W			5	400	75	EN60601-1
H1212S-2W	12	10.8-13.2	12	167	80	EN60601-1
H1215S-2W			15	133	78	EN60601-1
H2405S-2W			5	400	75	EN60601-1
H2412S-2W	24	21.6-26.4	12	167	80	EN60601-1
H2415S-2W			15	133	79	EN60601-1

Note: H_S-2W Series have got EN60601-1.

G_S-1W/2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
G0505S-1W			±5	±100	70	
G0512S-1W	5	4.5-5.5	±12	±42	73	
G0515S-1W			±15	±33	75	
G1205S-1W			±5	±100	70	
G1212S-1W	12	10.8-13.2	±12	±42	72	
G1215S-1W			±15	±33	75	
G0505S-2W			±5	±200	74	EN60601-1
G0512S-2W	5	4.5-5.5	±12	±84	77	EN60601-1
G0515S-2W			±15	±67	77	EN60601-1
G1205S-2W			±5	±200	75	EN60601-1
G1212S-2W	12	10.8-13.2	±12	±84	80	EN60601-1
G1215S-2W			±15	±67	78	EN60601-1
G2405S-2W			±5	±200	75	EN60601-1
G2412S-2W	24	21.6-26.4	±12	±84	80	EN60601-1
G2415S-2W			±15	±67	79	EN60601-1

Note: G_S-2W Series have got EN60601-1.

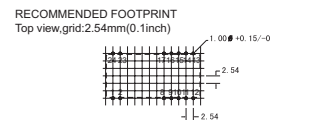
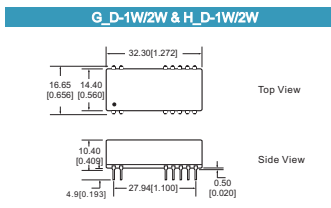
H/G_D-1W & H/G_D-2W Series

FIXED INPUT, 6000VDC ISOLATED&UNREGULATED, MEDICAL
DUAL/SINGLE OUTPUT, 1W/2W DC-DC CONVERTER

RoHS EN60601-1

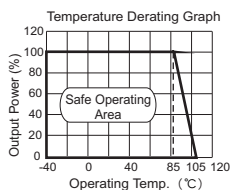
FEATURES

- Temperature Range: -40°C ~ +85°C
- 6KVDC Isolation
- High power density
- Low Isolation capacitance
- Internal SMD Construction
- Continuous short circuit protection(1W 5V except)
- DIP Package; Industry Standard Pinout
- Medical application compliance



Function	Vin	GND	-Vo	0V	+Vo	NC
G_D	1	2	8,17	10,15	12,13	Others
H_D	1	2	-	10,15	12,13	Others

TYPICAL TEMPERATURE CURVE



- Line regulation: For Vin change of ±1%..... ± 1.2%(max)
 Load regulation: 10% to 100% load.....15%(max)
 Temperature drift: 100% full load..... ± 0.03%/°C(max)
 Ripple & Noise: 20MHz Bandwidth(1W).....200mVp-p(max)
 20MHz Bandwidth(2W).....250mVp-p(max)
 Switching frequency: 100% Full load nominal input(5V).....35KHz
 100% Full load nominal input(12V/24V)..50KHz
 Storage temperature.....-55°C ~ +125°C
 Isolation resistance.....1000MΩ(min)
 Isolation Capacitance.....10pF(max)
 MTBF.....3,500,000 hours(min)
 Cooling.....Free air convection

H_D-1W/2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
H0505D-1W			5	200	70	UL
H0512D-1W	5	4.5-5.5	12	84	73	UL
H0515D-1W			15	67	74	UL
H1205D-1W			5	200	70	UL
H1212D-1W	12	10.8-13.2	12	84	72	UL
H1215D-1W			15	67	74	UL
H0505D-2W			5	400	75	UL
H0512D-2W	5	4.5-5.5	12	167	78	UL
H0515D-2W			15	133	77	UL
H1205D-2W			5	400	75	UL
H1212D-2W	12	10.8-13.2	12	167	80	UL
H1215D-2W			15	133	78	UL
H2405D-2W			5	400	77	UL
H2412D-2W	24	21.6-26.4	12	167	81	UL
H2415D-2W			15	133	80	UL

G_D-1W/2W Series

Part Number	Vin (VDC)	Input Range (VDC)	Vout (VDC)	Iout (mA)	Eff(TYP) %	Certificate
G0505D-1W			±5	±100	70	UL
G0512D-1W	5	4.5-5.5	±12	±42	72	UL
G0515D-1W			±15	±33	73	UL
G1205D-1W			±5	±100	70	UL
G1212D-1W	12	10.8-13.2	±12	±42	72	UL
G1215D-1W			±15	±33	75	UL
G0505D-2W			±5	±200	75	UL
G0512D-2W	5	4.5-5.5	±12	±84	79	UL
G0515D-2W			±15	±67	78	UL
G1205D-2W			±5	±200	76	UL
G1212D-2W	12	10.8-13.2	±12	±84	80	UL
G1215D-2W			±15	±67	78	UL
G2405D-2W			±5	±200	77	UL
G2412D-2W	24	21.6-26.4	±12	±84	81	UL
G2415D-2W			±15	±67	80	UL