

MMI

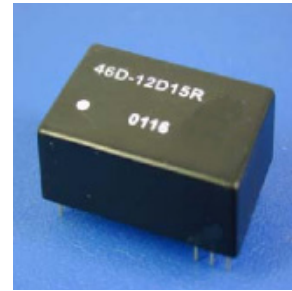
**DC/DC CONVERTER
3W**

FEATURES

- UP TO 3WATTS OUTPUT POWER
- 24PIN DIL PACKAGE
- 3000Vrms ISOLATION
- REGULATED OUTPUT TYPES
- LOW RIPPLE AND NOISE

GENERAL SPECIFICATIONS

- OUTPUT RIPPLE & NOISE : 50mVp-p(20MHz B.W.)
- ISOLATION RESISTANCE : 100MΩ MIN.
- SWITCHING FREQUENCY : 125KHz TYP.
- OPERATING TEMPERATURE : 0°C TO 70°C
- STORAGE TEMPERATURE RANGE : -40°C TO 125°C
- SHORT CIRCUIT PROTECTION : CONTINUOUS
- SHORT CIRCUIT RESTART : AUTOMATIC



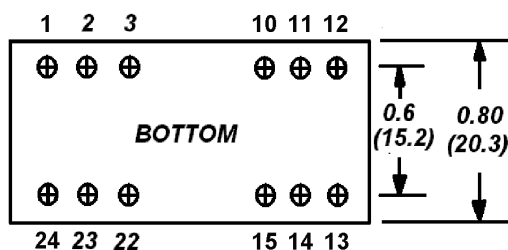
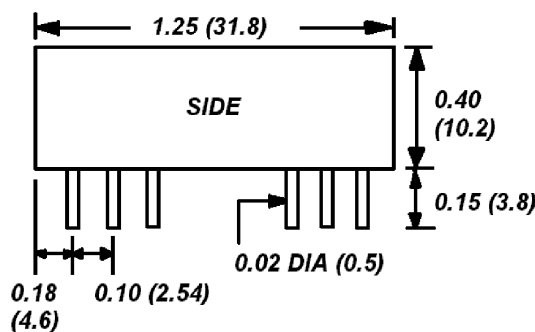
ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE RANGE : ±10%
- OUTPUT VOLTAGE TOLERANCE : ±5%
- LINE REGULATION (REGULATED) : ±0.3%
- LOAD REGULATION (REGULATED) : ±0.5%
- EFFICIENCY (REGULATED) : 60% TYP

(Typical at nominal input , rated load and 25°C unless otherwise specified)

PART NO.	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	PART NO.	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT
46D-05S05R	5VDC	5VDC	600mA	46D-24S15R	24	15VDC	200mA
46D-05S12R	5VDC	12VDC	250mA	46D-24D12R	24	±12VDC	±125mA
46D-05S15R	5VDC	15VDC	200mA	46D-24D15R	24	±15VDC	±100mA
46D-05D12R	5VDC	±12VDC	±125mA	46D-28S05R	28	5VDC	600mA
46D-05D15R	5VDC	±15VDC	±100mA	46D-28S12R	28	12VDC	250mA
46D-12S05R	12VDC	5VDC	600mA	46D-28S15R	28	15VDC	200mA
46D-12S12R	12VDC	15VDC	250mA	46D-28D12R	28	±12VDC	±125mA
46D-12S15R	12VDC	15VDC	200mA	46D-28D15R	28	±15VDC	±100mA
46D-12D12R	12VDC	±12VDC	±125mA	46D-48S05R	48	5VDC	600mA
46D-12D15R	12VDC	±15VDC	±100mA	46D-48S12R	48	12VDC	250mA
46D-24S05R	24VDC	5VDC	600mA	46D-48S15R	48	15VDC	200mA
46D-24S12R	24VDC	12VDC	250mA	46D-48D12R	48	±12VDC	±125mA

MARKINGS AND DIMENSIONS



PIN CONNECTION

PIN	SINGLE OUTPUT	DUAL OUTPUT
1,2,3	+INPUT	+INPUT
10,11	NC	COMMON
12	-OUTPUT	NC
13	+OUTPUT	-OUTPUT
15	NC	+OUTPUT
22,23,24	-INPUT	-INPUT

MMT 54D/60D/70D SERIES

3WATT 24PIN DIL DC-DC CONVERTER

FEATURES

- UP TO 3 WATTS OUTPUT POWER
- 54D 24PIN DIL (1.25x0.8x0.4 INCHES) PACKAGE
- 60D 2x1x0.4 INCHES PACKAGE
- 70D 1.3x1.3x0.4 INCHES PACKAGE
- 500VDC ISOLATION
- PI INPUT FILTER
- UNREGULATED & REGULATED OUTPUT TYPES
- LOW RIPPLE AND NOISE

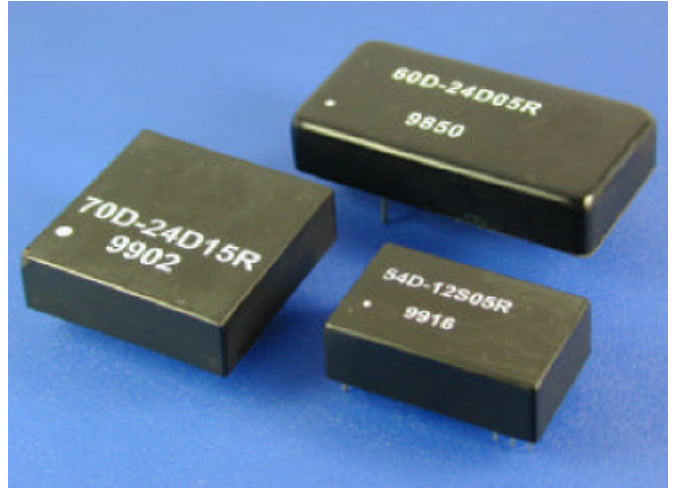
GENERAL SPECIFICATIONS

- OUTPUT RIPPLE & NOISE : 50mVp-p(20MHz B.W.)
- ISOLATION RESISTANCE : 100M Ω MIN @500VDC
- SWITCHING FREQUENCY : 20KHz TYP.
- OPERATING TEMPERATURE : 0 °C TO 70°C
- STORAGE TEMPERATURE RANGE : -40°C TO 100°C
- EFFICIENCY(UNREGULATED) : 70% TYP
- (REGULATED) : 50% TYP
- SHORT CIRCUIT PROTECTION : CONTINUOUS

ELECTRICAL SPECIFICATIONS

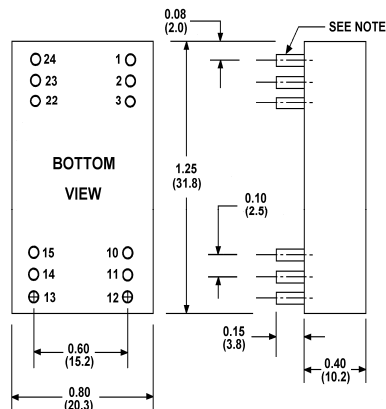
- INPUT VOLTAGE RANGE : $\pm 10\%$
- OUTPUT VOLTAGE ACCURACY : $\pm 5\%$
- LINE REGULATION (REGULATED) : $\pm 0.3\%$
- UNREGULATED (PER 1% CHAGE IN INPUT VOLTAGE) : $\pm 1.2\%$
- LOAD REGULATION (REGULATED) : $\pm 0.5\%$
- UNREGULATED (FOR LOAD CHANGE FROM 100% TO 20%) : $\pm 10\%$

(Typical at nominal input , rated load and 25°C unless otherwise specified)



PART NO.	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY (%)
54D/60D/70D-05S05R	5VDC	5VDC	600mA	60
54D/60D/70D-05S12R	5VDC	12VDC	250mA	65
54D/60D/70D-05D12R	5VDC	± 12 VDC	± 125 mA	65
54D/60D/70D-12S12R	12VDC	12VDC	250mA	65
54D/60D/70D-12S15R	12VDC	15VDC	200mA	65
54D/60D/70D-12D15R	12VDC	± 15 VDC	± 100 mA	65
54D/60D/70D-24S05R	24VDC	5VDC	600mA	60
54D/60D/70D-24D12R	24VDC	± 12 VDC	± 125 mA	65
54D/60D/70D-24D15R	24VDC	± 15 VDC	± 100 mA	65
54D/60D/70D-48S12R	48VDC	12VDC	250mA	65
54D/60D/70D-48D12R	48VDC	± 12 VDC	± 125 mA	65
54D/60D/70D-48D15R	48VDC	± 15 VDC	± 100 mA	65

MARKINGS AND DIMENSIONS

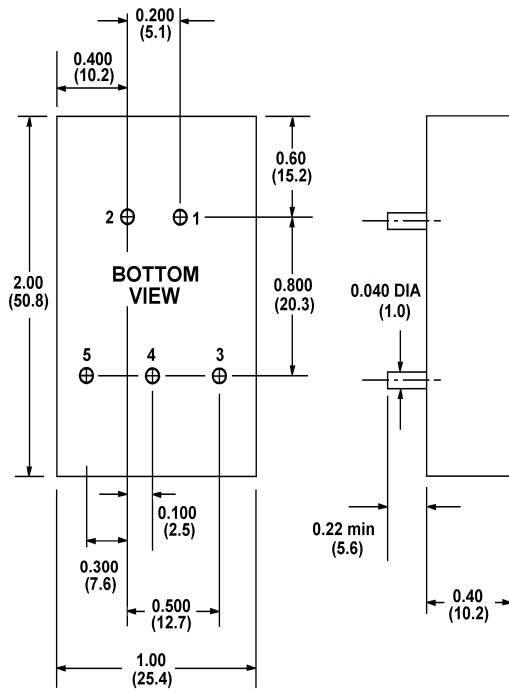


PIN CONNECTION

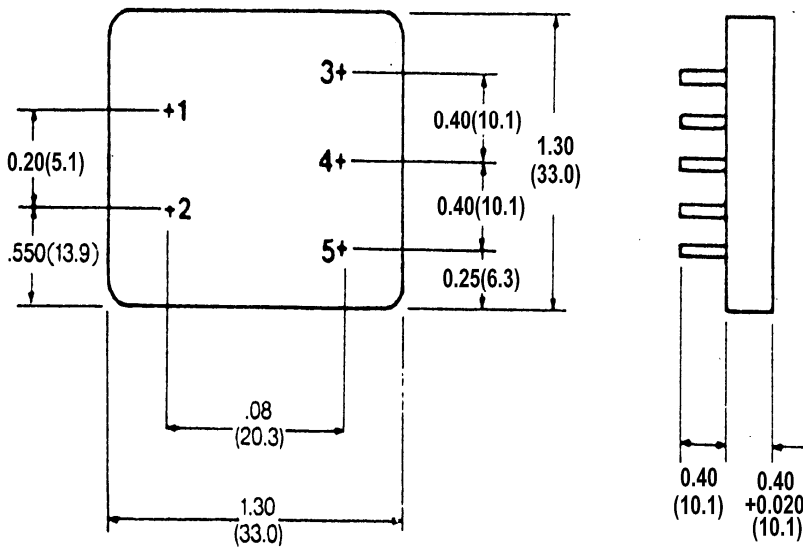
Pin	SINGLE OUTPUT	DUAL OUTPUT
1	+INPUT	+INPUT
2	NC	-OUTPUT
3	NC	COMMON
10	-OUTPUT	COMMON
11	+OUTPUT	+OUTPUT
12	-INPUT	-INPUT
13	-INPUT	-INPUT
14	+OUTPUT	+OUTPUT
15	-OUTPUT	COMMON
22	NC	COMMON
23	NC	-OUTPUT
24	+INPUT	+INPUT

MARKINGS AND DIMENSION

PIN CONNECTION



Pin	SINGLE OUTPUT	DUAL OUTPUT
1	+INPUT	+INPUT
2	-INPUT	-INPUT
3	+OUTPUT	+OUTPUT
4	NO PIN	COMMON
5	-OUTPUT	-OUTPUT



Pin	SINGLE OUTPUT
1	+INPUT
2	-INPUT
3	NO PIN
4	+OUTPUT
5	-OUTPUT

Pin	DUAL OUTPUT
1	+INPUT
2	-INPUT
3	+OUTPUT
4	COMMON
5	-OUTPUT

Dimensions: inches/mm

Unless otherwise specified, all tolerances are $\pm 0.005/\pm 0.13$



WIDE INPUT VOLTAGE RANGE

68D SERIES 3 WATTS DC-DC CONVERTER

FEATURES

- 2:1 WIDE INPUT VOLTAGES:9-18V,18-36V,36-72V
- 3 WATTS 24PIN DIL(1.25x0.8x0.4inches) PACKAGE
- EFFICIENCY TO 80%
- PI INPUT FILTER

GENERAL SPECIFICATIONS

- SWITCHING FREQUENCY : 100KHz TYP.
- OUTPUT RIPPLE & NOISE : 100mVp-p(20MHz B.W.)
- ISOLATION VOLTAGE : 500VDC
- ISOLATION RESISTANCE : 10^9 ohms
- STORAGE TEMPERATURE RANGE : -40°C TO 100°C
- OPERATING TEMPERATURE RANGE : -25°C TO +71°C
- SHORT CIRCUIT PROTECTION : CONTINUOUS
- CASE MATERIAL : BLACK COATED COPPER WITH NON-CONDUCTIVE BASE

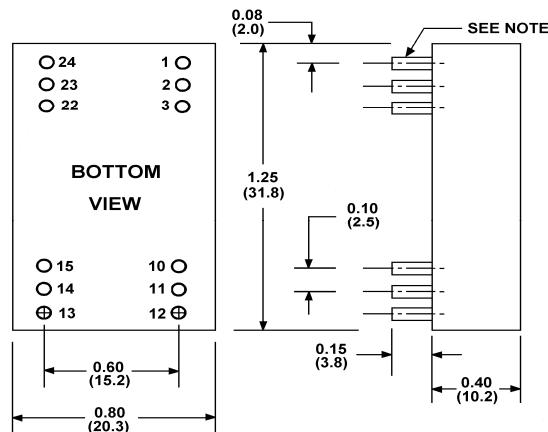


ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE RANGE :12V nominal ...9-18V
:24V nominal ...18-36V
:48V nominal ...36-72V
- OUTPUT VOLTAGE ACCURACY :±2%
- LINE REGULATION :±0.5%
- LOAD REGULATION(SINGLE) :±0.5%
- LOAD REGULATION(DUAL) :±2%
- EFFICIENCY :see table

PART NO.	INPUT RANGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY (%)
68D-12S05R	9-18VDC	5VDC	500mA	74
68D-12S12R	9-18VDC	12VDC	250mA	79
68D-12S15R	9-18VDC	15VDC	200mA	79
68D-12D05R	9-18VDC	±5VDC	±250mA	74
68D-12D12R	9-18VDC	±12VDC	±125mA	76
68D-12D15R	9-18VDC	±15VDC	±100mA	76
68D-24S05R	18-36VDC	5VDC	500mA	74
68D-24S12R	18-36VDC	12VDC	250mA	79
68D-24S15R	18-36VDC	15VDC	200mA	79
68D-24D05R	18-36VDC	±5VDC	±250mA	74
68D-24D12R	18-36VDC	±12VDC	±125mA	79
68D-24D15R	18-36VDC	±15VDC	±100mA	79
68D-48S05R	36-72VDC	5VDC	500mA	74
68D-48S12R	36-72VDC	12VDC	250mA	79
68D-48S15R	36-72VDC	15VDC	200mA	78
68D-48D05R	36-72VDC	±5VDC	±250mA	74
68D-48D12R	36-72VDC	±12VDC	±125mA	79
68D-48D15R	36-72VDC	±15VDC	±100mA	79

MARKINGS AND DIMENSIONS



Dimensions:inches/mm

Unless otherwise specified, all tolerances are $\pm 0.005/\pm 0.13$

PIN CONNECTION

PIN	SINGLE	DUAL
1,2	+INPUT	+INPUT
10,11	NC	COMMON
12	-OUTPUT	NC
13	+OUTPUT	-OUTPUT
15	NC	+OUTPUT
23,24	-INPUT	-INPUT



WIDE INPUT VOLTAGE RANGE

68D1 SERIES 3 WATTS DC-DC CONVERTER

FEATURES

- 2:1 WIDE INPUT VOLTAGES:9-18V,18-36V,36-72V
- 3 WATTS 24PIN DIL(1.25x0.8x0.4inches) PACKAGE
- EFFICIENCY TO 80%
- PI INPUT FILTER



GENERAL SPECIFICATIONS

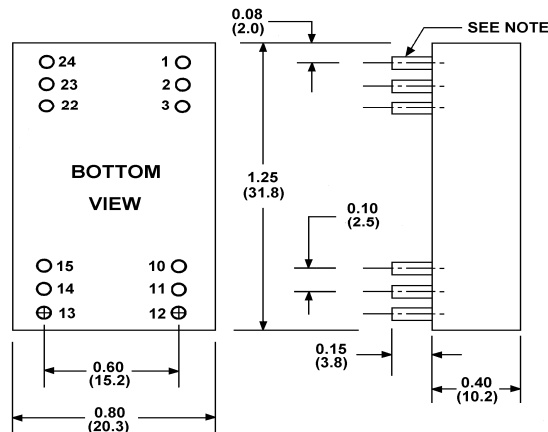
- SWITCHING FREQUENCY : 100KHz TYP.
- OUTPUT RIPPLE & NOISE : 100mVp-p(20MHz B.W.)
- ISOLATION VOLTAGE : 500VDC
- ISOLATION RESISTANCE : 10⁹ ohms
- STORAGE TEMPERATURE RANGE :-40°C TO 100°C
- OPERATING TEMPERATURE RANGE :-25°C TO +71°C
- SHORT CIRCUIT PROTECTION : CONTINUOUS
- CASE MATERIAL : BLACK COATED COPPER WITH NON-CONDUCTIVE BASE

ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE RANGE :12V nominal ...9-18V
:24V nominal ...18-36V
:48V nominal ...36-72V
- OUTPUT VOLTAGE ACCURACY :±2%
- LINE REGULATION :±0.5%
- LOAD REGULATION(SINGLE) :±0.5%
- LOAD REGULATION(DUAL) :±2%
- EFFICIENCY :see table

PART NO.	INPUT RANGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY (%)
68D1-12S05R	9-18VDC	5VDC	500mA	74
68D1-12S12R	9-18VDC	12VDC	250mA	79
68D1-12S15R	9-18VDC	15VDC	200mA	79
68D1-12D05R	9-18VDC	±5VDC	±250mA	74
68D1-12D12R	9-18VDC	±12VDC	±125mA	76
68D1-12D15R	9-18VDC	±15VDC	±100mA	76
68D1-24S05R	18-36VDC	5VDC	500mA	74
68D1-24S12R	18-36VDC	12VDC	250mA	79
68D1-24S15R	18-36VDC	15VDC	200mA	79
68D1-24D05R	18-36VDC	±5VDC	±250mA	74
68D1-24D12R	18-36VDC	±12VDC	±125mA	79
68D1-24D15R	18-36VDC	±15VDC	±100mA	79
68D1-48S05R	36-72VDC	5VDC	500mA	74
68D1-48S12R	36-72VDC	12VDC	250mA	79
68D1-48S15R	36-72VDC	15VDC	200mA	78
68D1-48D05R	36-72VDC	±5VDC	±250mA	74
68D1-48D12R	36-72VDC	±12VDC	±125mA	79
68D1-48D15R	36-72VDC	±15VDC	±100mA	79

MARKINGS AND DIMENSIONS



Dimensions:inches/mm

Unless otherwise specified, all tolerances are ±.005/±0.13

PIN CONNECTION

PIN	SINGLE	DUAL
2,3	-INPUT	-INPUT
9	NC	COMMON
11	NC	-OUTPUT
14	+OUTPUT	+OUTPUT
16	-OUTPUT	COMMON
22,23	+INPUT	+INPUT



WIDE INPUT VOLTAGE RANGE

69D SERIES 3 WATTS DC-DC CONVERTER

FEATURES

- 4:1 WIDE INPUT VOLTAGES:10-33VDC,18-72VDC
- 3 WATTS 24PIN DIL(1.25x0.8x0.4inches) PACKAGE
- EFFICIENCY TO 80%
- PI INPUT FILTER



GENERAL SPECIFICATIONS

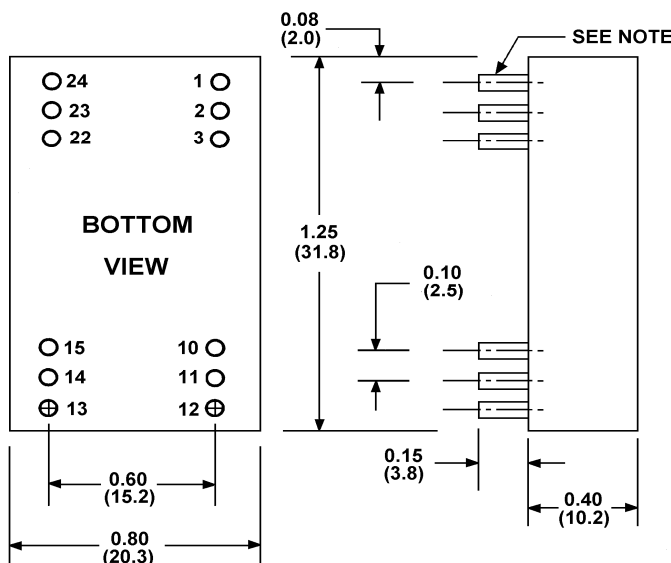
- SWITCHING FREQUENCY : 100KHz TYP.
- OUTPUT RIPPLE & NOISE : 100mVp-p(20MHz B.W.)
- ISOLATION VOLTAGE : 500VDC
- ISOLATION RESISTANCE : 10^9 ohms
- STORAGE TEMPERATURE RANGE : -40°C TO 100°C
- OPERATING TEMPERATURE RANGE : -25°C TO +71°C
- SHORT CIRCUIT PROTECTION : CONTINUOUS
- CASE MATERIAL : BLACK COATED COPPER WITH NON-CONDUCTIVE BASE

ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE RANGE :24V nominal ...10-33V
:48V nominal ...18-72V
- OUTPUT VOLTAGE ACCURACY :±2%
- LINE REGULATION :±0.5%
- LOAD REGULATION(SINGLE) :±0.5%
- LOAD REGULATION(DUAL) :±2%
- EFFICIENCY :see table

PART NO.	INPUT RANGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY (%)
69D-24S05R	10-33VDC	5VDC	500mA	74
69D-24S12R	10-33VDC	12VDC	250mA	77
69D-24S15R	10-33VDC	15VDC	200mA	77
69D-24D05R	10-33VDC	±5VDC	±250mA	74
69D-24D12R	10-33VDC	±12VDC	±125mA	77
69D-24D15R	10-33VDC	±15VDC	±100mA	77
69D-48S05R	18-72VDC	5VDC	500mA	74
69D-48S12R	18-72VDC	12VDC	250mA	77
69D-48S15R	18-72VDC	15VDC	200mA	77
69D-48D05R	18-72VDC	±5VDC	±250mA	74
69D-48D12R	18-72VDC	±12VDC	±125mA	76
69D-48D15R	18-72VDC	±15VDC	±100mA	76

MARKINGS AND DIMENSIONS



PIN CONNECTION

PIN	SINGLE	DUAL
1,2	+INPUT	+INPUT
10,11	NC	COMMON
12	-OUTPUT	NC
13	+OUTPUT	-OUTPUT
15	NC	+OUTPUT
16	NC	NC
20	NC	NC
23,24	-INPUT	-INPUT

Dimensions:inches/mm

Unless otherwise specified, all tolerances are $\pm 0.005/\pm 0.13$