

# MG SERIES AC-DC POWER SUPPLIES

## Power Electronics Group



Magnetek's MG1 Modular Power Supplies



Magnetek's MG2 Modular Power Supplies



Magnetek's MG3 Modular Power Supplies

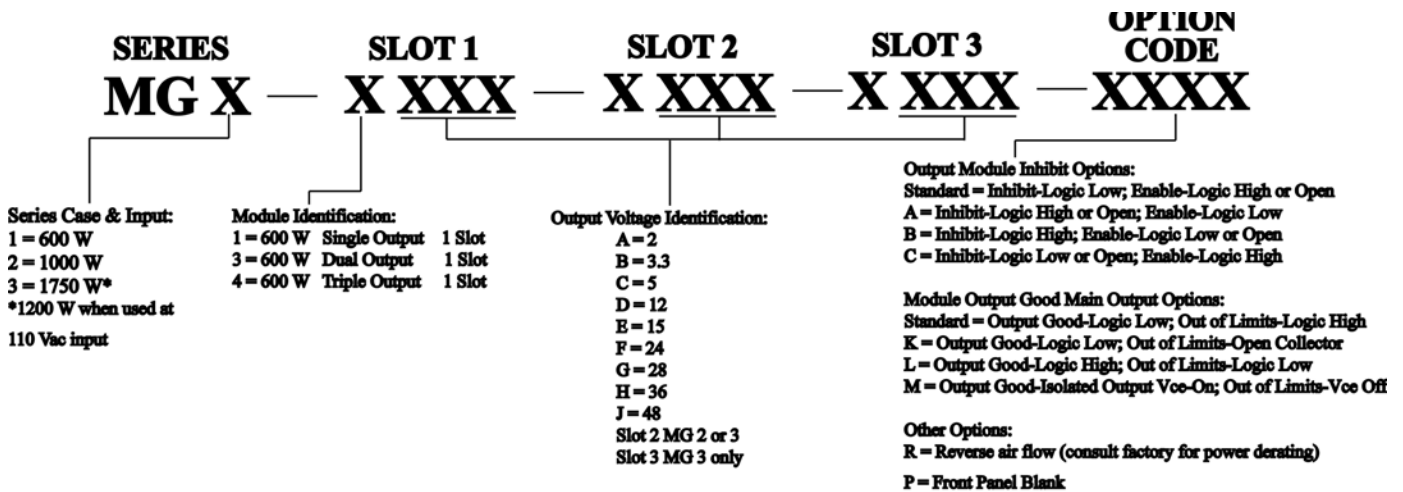
### Modular Multiple-Output Ac-Dc Power Supplies

The MG1, 2 & 3 switch-mode modular power supplies offer fully enclosed power solutions that optimize flexibility and space allocation through common modular assemblies. Interface signals enhance system intelligence, making these power supplies ideally suited for meeting today's complex power requirements in telecommunications, computer and industrial applications. The MG series Ac-Dc Power Supplies provide power from 600 W to 1750 W depending on the model.

#### **Key Features:**

- o Modular design
- o Zero switching losses
- o .99 active power factor correction
- o IEC 555-2 compliant
- o Modern SMT design
- o Current sharing on all outputs (N + 1 redundancy)
- o Up to nine fully-isolated outputs
- o All outputs are fully regulated
- o No minimum load required

### Ordering Information



## Specifications

### Input Specifications

**Input voltage range:** 90 to 264 Vac, 47 to 63 Hz

**Power Factor:** 0.99 at full load and nominal line

**Inrush Current:** 40 A peak hot and cold start

**Input Protection:** Ac line fuse provided

### Output Specifications

#### Output Power:

**MG1:** 600 W maximum at 90–264 Vac

**MG2:** 1000 W maximum at 100–264 Vac  
900 W maximum at 90–100 Vac

**MG3:** 1750 W maximum at 180–264 Vac  
1200 W maximum at 100–180 Vac  
1000 W maximum at 90–100 Vac

#### Overshoot/Undershoot:

Less than 1% at turn on or turn off.

Less than 3% load step

**Start-Up Time:** Less than 1 second with Ac power on to regulated outputs @ full load

#### Efficiency:

81% typical measured at 230 Vac, full load

78% typical measured at 115 Vac, full load

#### Regulation:

**Load:** .05% typical, .2% maximum, 0-100% load,  
85–264 Vac

**Line:** .05% typical

**Cross:** 0-100% load change

**Minimum Load:** Minimum loading not required

**Overtemperature Protection:** Automatic restart

**Remote Sense:** Compensates for voltage drop of up to 0.5 V to the load.

**Overvoltage Protection:** All outputs set at 115-125% of nominal. Recycle power to restart.

**48V Output Protection:** All outputs set at 110-125% of nominal. Recycle power to restart.

**Output Noise and Ripple:** 50 mV or 1% pk-pk maximum on all outputs measured at 20 MHz bandwidth

**Voltage Adjustment:** -10% to +10% of nominal

**Long Term Drift:** .02% of nominal per thousand hours

#### Current Limit:

**Single Output Module:** 105-125% of nominal

**Multiple Output Module:** 105-130% of nominal

**Current Share:** 1% typical, 5% maximum at 20-100% of full load

**Reverse Voltage Protection:** 100% of nominal

### Signal and Controls

**LED Indicator:** Front panel green LED indicates power supply is good.  
Front panel yellow LED indicates power supply fault.

**Output Good Signal:** TTL compatible signal, normally low. Goes high when power supply is 5-8% over nominal.

**Module Inhibit/Enable:** Normally TTL High or Open, drive low to inhibit

**Global Inhibit/Enable:** Normally TTL High or Open, drive low to inhibit

**Hold-Up Time:** 20 ms minimum at full load, 90-264 Vac

**Supply Power Fail:** Signal goes low after Ac input failure and 5 ms before any output goes out of regulation.

**Margining/Remote Voltage Adjustment:** -10% to +10% of nominal

### Safety & Environmental

#### Temperature Range:

**Operating:** 0 to 50 °C

**Storage:** -40 °C to +85 °C

**Operating Humidity:** Maximum 95% non-condensing

#### Altitude:

**Operating:** 10,000 feet

**Non-operating:** 40,000 feet

**Temperature Coefficient:** 0.01% per °C within rated load

**Safety Agency Compliance:** UL1950, CE, cUL, IEC950 – Class SELV, TUV, EN60950

**EMI (conducted):** Meets VDE/CISPR22, FCC Part 15, Class A

**Immunity:** Meets EN61000 sections 3-2, 3-3, 4-2, 4-3, 4-4, 4-5, 4-6, and 4-11

#### Dielectric Withstand:

**Input-to-ground:** 2200 Vdc

**Input-to-output:** 4300 Vdc

**Output-to-case:** 100 Vdc

**AC Leakage Current:** 2.0 mA maximum at 250 Vac, 60 Hz

### Mechanical Specifications

#### Size:

**MG1:** 2.8" x 5.0" x 11.0"

**MG2:** 4.0" x 5.0" x 11.0"

**MG3:** 5.2" x 5.0" x 11.0"

**I/O Connector:** See drawings for details

**MTBF:** 250,000 hours calculated at 25 °C, Bellcore Standard

**Warranty:** Two years from date of shipment, standard product only

*Specifications are subject to change without prior notice.*

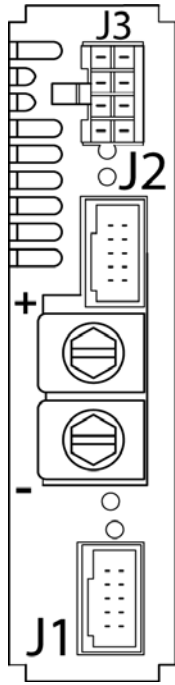
## Voltage/Current Characteristics

| SINGLE OUTPUT MODULE   |                       |
|------------------------|-----------------------|
| 600 Watts Single Slot  |                       |
| Output Voltage (Volts) | Output Current (Amps) |
| 2                      | 120                   |
| 3.3                    | 120                   |
| 5                      | 120                   |
| 12                     | 50                    |
| 15                     | 40                    |
| 24                     | 25                    |
| 28                     | 21                    |
| 36                     | 18                    |
| 48                     | 13                    |

| DUAL OUTPUT MODULE     |                  |                  |
|------------------------|------------------|------------------|
| 600 Watts Single Slot  |                  |                  |
| Output Voltage (Volts) | Output V1 (Amps) | Output V2 (Amps) |
| 2                      | 60               | 16               |
| 3.3                    | 60               | 16               |
| 5                      | 60               | 16               |
| 12                     | 25               | 16               |
| 15                     | 20               | 13               |
| 24                     | 13               | 8                |
| 36                     | 8                | N/A              |
| 48                     | 6                | N/A              |

| TRIPLE OUTPUT MODULE   |                  |                  |                  |
|------------------------|------------------|------------------|------------------|
| 600 Watts Single Slot  |                  |                  |                  |
| Output Voltage (Volts) | Output V1 (Amps) | Output V2 (Amps) | Output V3 (Amps) |
| 2                      | 60               | 10               | 10               |
| 3.3                    | 60               | 10               | 10               |
| 5                      | 60               | 10               | 10               |
| 12                     | 25               | 10               | 10               |
| 15                     | 20               | 8                | 8                |
| 24                     | 13               | 5                | 5                |

## Output Module – Dual/Triple Output – Single Slot



| J1 – Dual/Triple Output – Single Slot |                              |
|---------------------------------------|------------------------------|
| PIN NO.                               | FUNCTION                     |
| 1                                     | V1 + SENSE                   |
| 2                                     | V1 - SENSE                   |
| 3                                     | INHIBIT HIGH                 |
| 4                                     | INHIBIT LOW                  |
| 5                                     | OUTPUT GOOD HIGH             |
| 6                                     | OUTPUT GOOD LOW              |
| 7                                     | V1 MARGIN/REMOTE VOLTAGE ADJ |
| 10                                    | V1 CURRENT SHARE             |

MOLEX SERIES 8724, #15-29-7210 MATING SERIES 70013, #15-04-5101 AND SERIES 70450, #22-55-2101 PINS 16-02-0086

| J2      |                              |
|---------|------------------------------|
| PIN NO. | FUNCTION                     |
| 1       | V2 + SENSE                   |
| 2       | V2 CURRENT SHARE             |
| 3       | V2 - SENSE                   |
| 5       | V3 CURRENT SHARE             |
| 6       | V3 + SENSE                   |
| 7       | V3 -SENSE                    |
| 8       | V3 MARGIN/REMOTE VOLTAGE ADJ |
| 10      | V2 MARGIN/REMOTE VOLTAGE ADJ |

MOLEX SERIES 8724, #15-29-7210 MATING SERIES 70013, #15-04-5101 AND SERIES 70450, #22-55-2101 PINS 16-02-0086

| J3 DUAL OUTPUT |          |
|----------------|----------|
| PIN NO.        | FUNCTION |
| 1,2,7,8        | +OUT V2  |
| 3-6            | -OUT V2  |

MOLEX SERIES 5569N, #39-30-1080 MATING SERIES 5557-NR #39-01-2080 PINS 39-00-0078

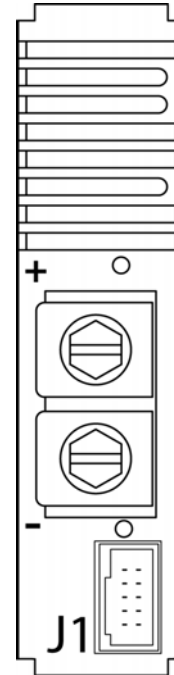
| J3 TRIPLE OUTPUT |          |
|------------------|----------|
| PIN NO.          | FUNCTION |
| 1,8              | -OUT V2  |
| 2,7              | +OUT V2  |
| 3,6              | +OUT V3  |
| 4,5              | -OUT V3  |

MOLEX SERIES 5569N, #39-30-1080 MATING SERIES 5557-NR #39-01-2080 PINS 39-00-0078

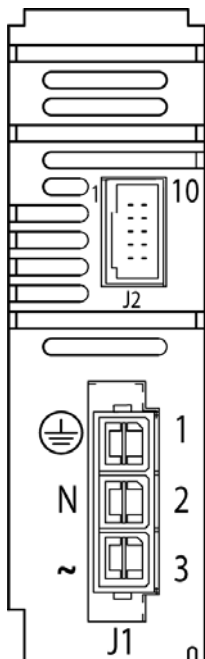
## Output Module – Single Output – Single Slot

| J1 – Single Output – Single Slot |                              |
|----------------------------------|------------------------------|
| PIN NO.                          | FUNCTION                     |
| 1                                | V1 + SENSE                   |
| 2                                | V1 - SENSE                   |
| 3                                | INHIBIT HIGH                 |
| 4                                | INHIBIT LOW                  |
| 5                                | OUTPUT GOOD HIGH             |
| 6                                | OUTPUT GOOD LOW              |
| 7                                | V1 MARGIN/REMOTE VOLTAGE ADJ |
| 10                               | V1 CURRENT SHARE             |

MOLEX SERIES 8724, #15-29-7210 MATING SERIES 70013, #15-04-5101 AND SERIES 70450, #22-55-2101 PINS 16-02-0086



## Input Module – Single/Double/Triple Slot



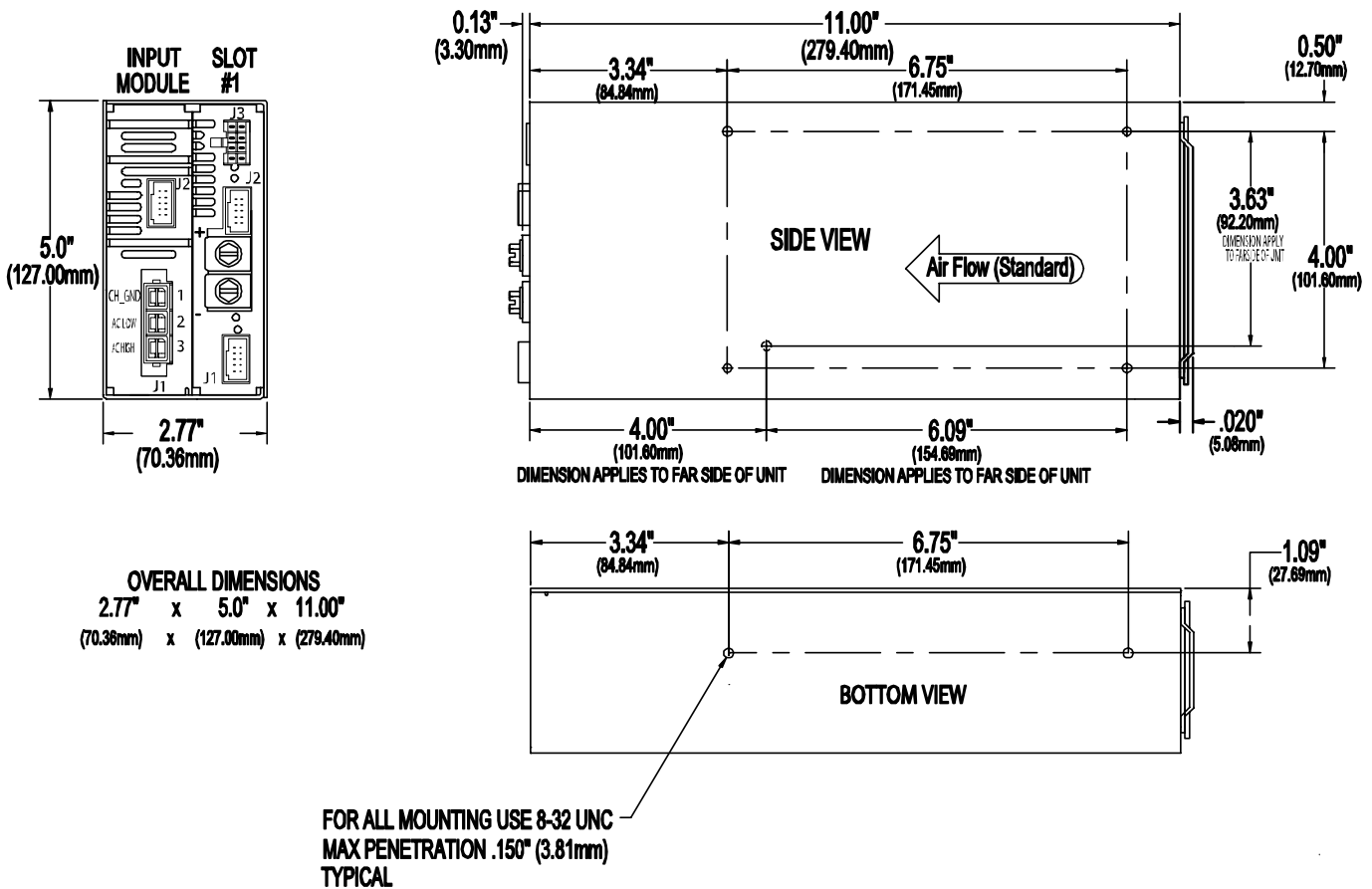
| J1      |             |
|---------|-------------|
| PIN NO. | FUNCTION    |
| 1       | CHASSIS GND |
| 2       | AC LOW      |
| 3       | AC HIGH     |

AMP SERIES 556882-3 MATING SERIES 556879-3; PINS 556883-2, 18-14 AWG; PINS 556880-2, 10-12 AWG

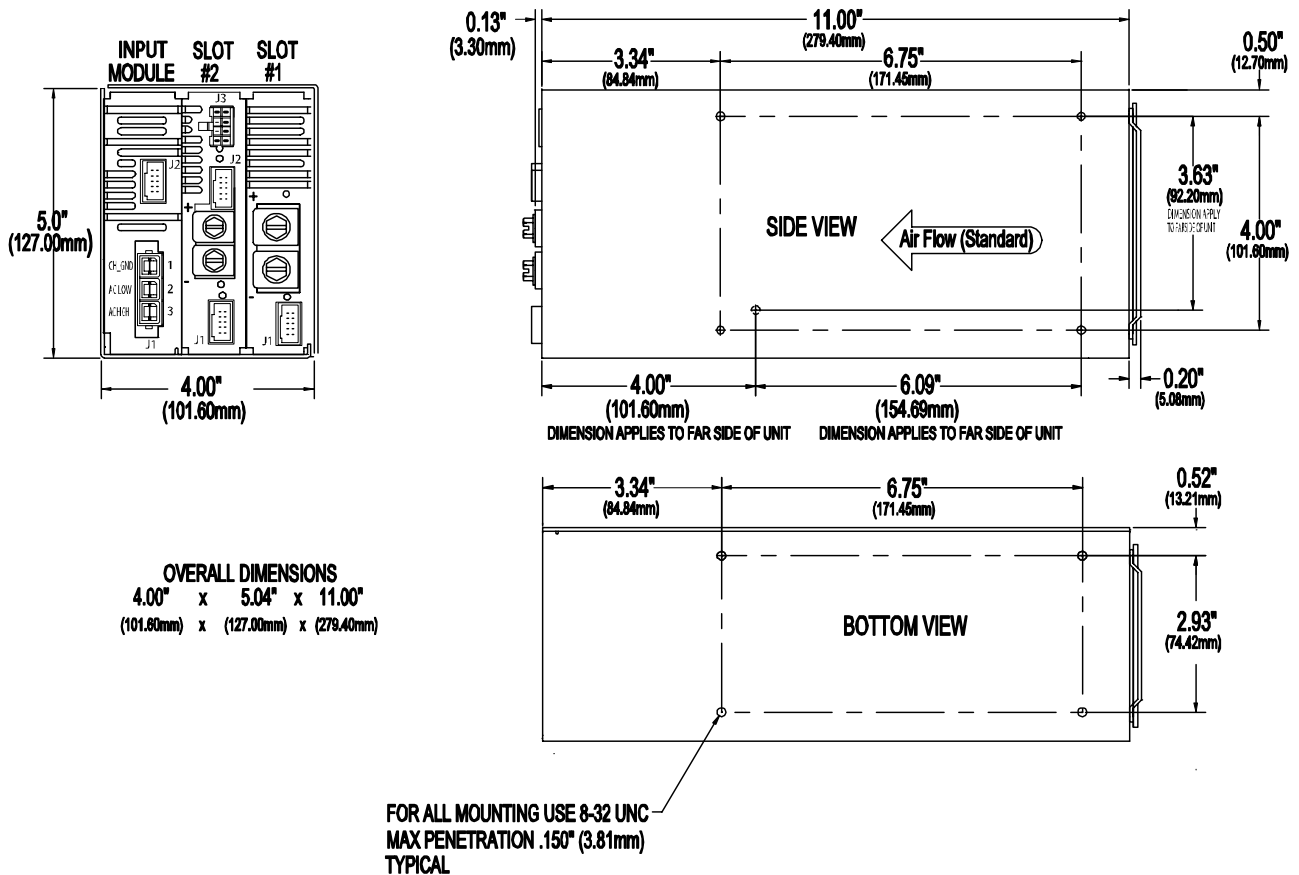
| J2      |                      |
|---------|----------------------|
| PIN NO. | FUNCTION             |
| 1       | AC POWER FAIL        |
| 8       | GLOBAL INHIBIT HIGH  |
| 9       | GLOBAL INHIBIT LOW   |
| 10      | AC POWER FAIL RETURN |

MOLEX SERIES 8074, #15-29-7210 MATING SERIES 70013, #15-04-5101 AND SERIES 70450, #22-55-2101 PINS 16-02-0086

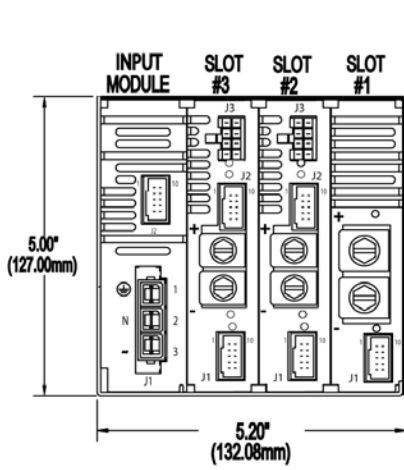
## MG1 Outline Drawings and Dimensions



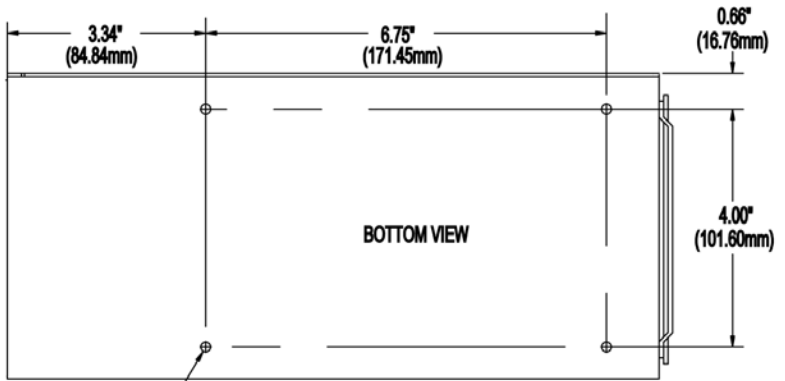
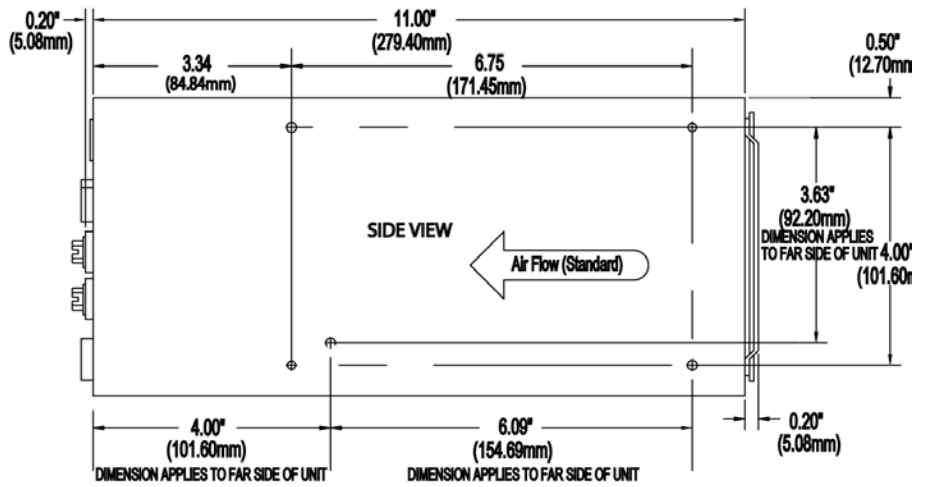
## MG2 Outline Drawings and Dimensions



# MG3 Outline Drawings and Dimensions



**OVERALL DIMENSIONS**  
 5.20" x 5.00" x 11.00"  
 (132.08mm) x (127.00mm) x (279.40mm)



FOR ALL MOUNTING USE 8-32 UNC  
 MAX PENETRATION .150" (3.81mm)  
 TYPICAL



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