

MJE340G

Plastic Medium-Power NPN Silicon Transistor

This device is useful for high-voltage general purpose applications.

Features

- Suitable for Transformerless, Line-Operated Equipment
- High Power Dissipation Rating for High Reliability
- These Devices are Pb-Free and are RoHS Compliant*
- Complementary to MJE350

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|------------------------------------------------------------------------------------------|----------------|-------------|---------------------------|
| Collector-Emitter Voltage | V_{CEO} | 300 | Vdc |
| Emitter-Base Voltage | V_{EB} | 3.0 | Vdc |
| Collector Current - Continuous | I_C | 500 | mAdc |
| Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 20 0.16 | W mW/ $^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range | T_J, T_{stg} | -65 to +150 | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--------------------------------------|---------------|------|---------------------------|
| Thermal Resistance, Junction-to-Case | θ_{JC} | 6.25 | $^\circ\text{C}/\text{W}$ |

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

OFF CHARACTERISTICS

| | | | | |
|-------------------------------------------------------------------------|----------------|-----|-----|-----------------|
| Collector-Emitter Sustaining Voltage ($I_C = 1.0$ mAdc, $I_B = 0$) | $V_{CEO(sus)}$ | 300 | - | Vdc |
| Collector Cutoff Current ($V_{CB} = 300$ Vdc, $I_E = 0$) | I_{CBO} | - | 100 | μAdc |
| Emitter Cutoff Current ($V_{EB} = 3.0$ Vdc, $I_C = 0$) | I_{EBO} | - | 100 | μAdc |

ON CHARACTERISTICS

| | | | | |
|----------------------------------------------------------|----------|----|-----|---|
| DC Current Gain ($I_C = 50$ mAdc, $V_{CE} = 10$ Vdc) | h_{FE} | 30 | 240 | - |
|----------------------------------------------------------|----------|----|-----|---|

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

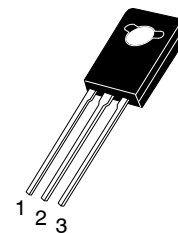
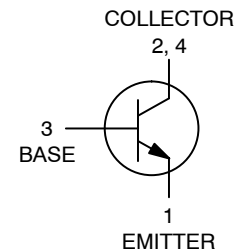


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**0.5 AMPERE
POWER TRANSISTOR
NPN SILICON
300 VOLTS, 20 WATTS**

SCHEMATIC



TO-225
CASE 77-09
STYLE 1

MARKING DIAGRAM



Y = Year
WW = Work Week
JE340 = Device Code
G = Pb-Free Package

ORDERING INFORMATION

| Device | Package | Shipping |
|---------|---------------------|---------------|
| MJE340G | TO-225 (Pb-Free) | 500 Units/Box |

MJE340G

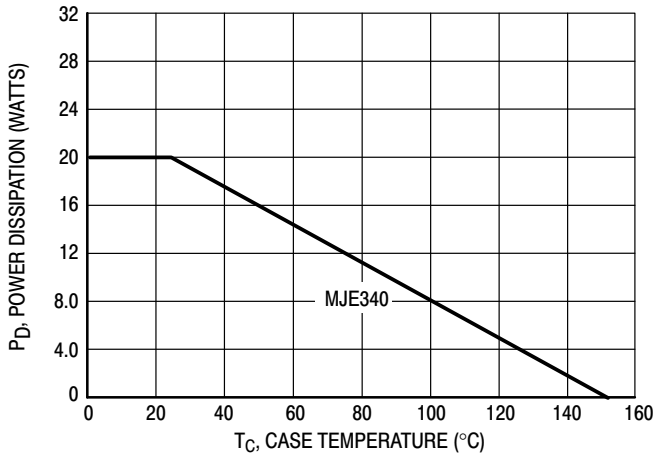


Figure 1. Power Temperature Derating

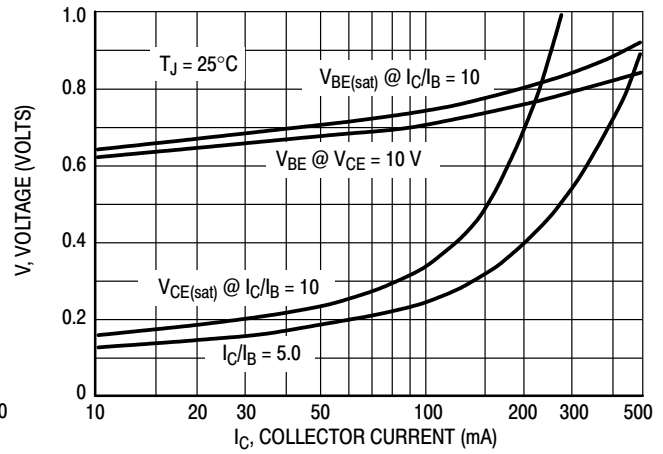


Figure 2. "On" Voltages

ACTIVE-REGION SAFE OPERATING AREA

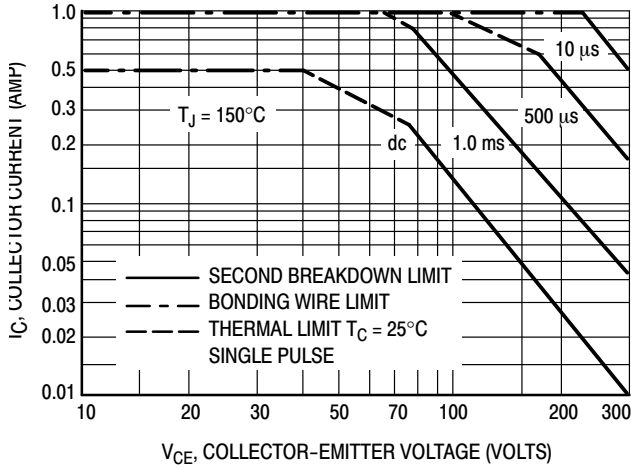


Figure 3. MJE340

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate. The data of Figure 3 is based on $T_{J(pk)} = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150^\circ\text{C}$. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

MJE340G

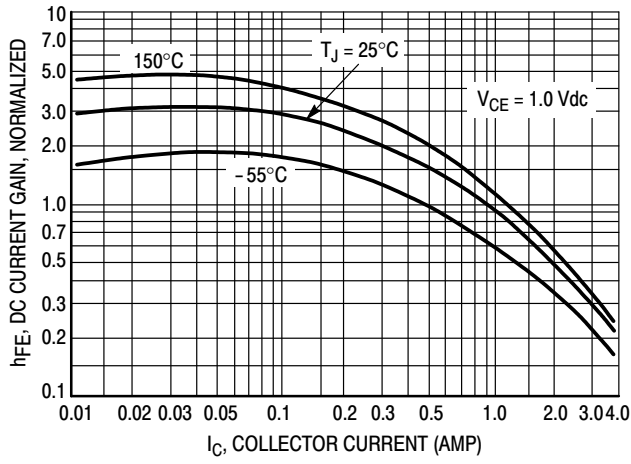


Figure 4. DC Current Gain

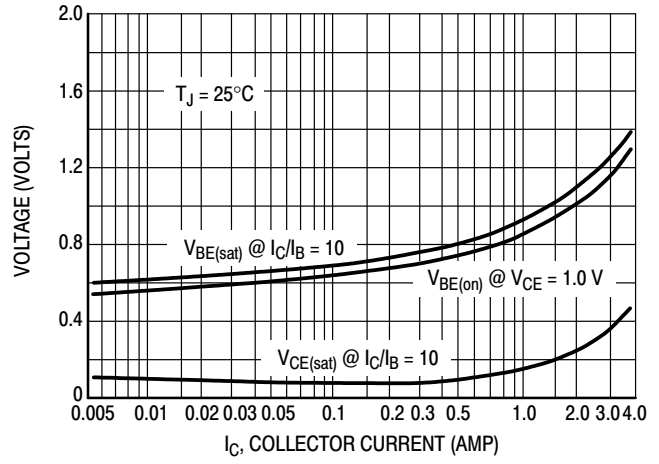


Figure 5. "On" Voltage

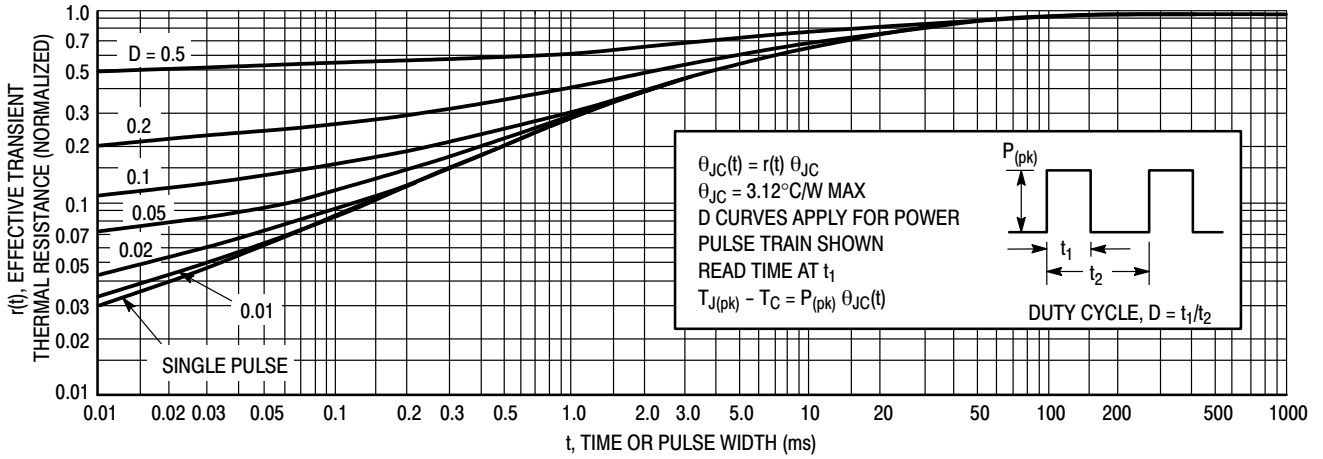


Figure 6. Thermal Response

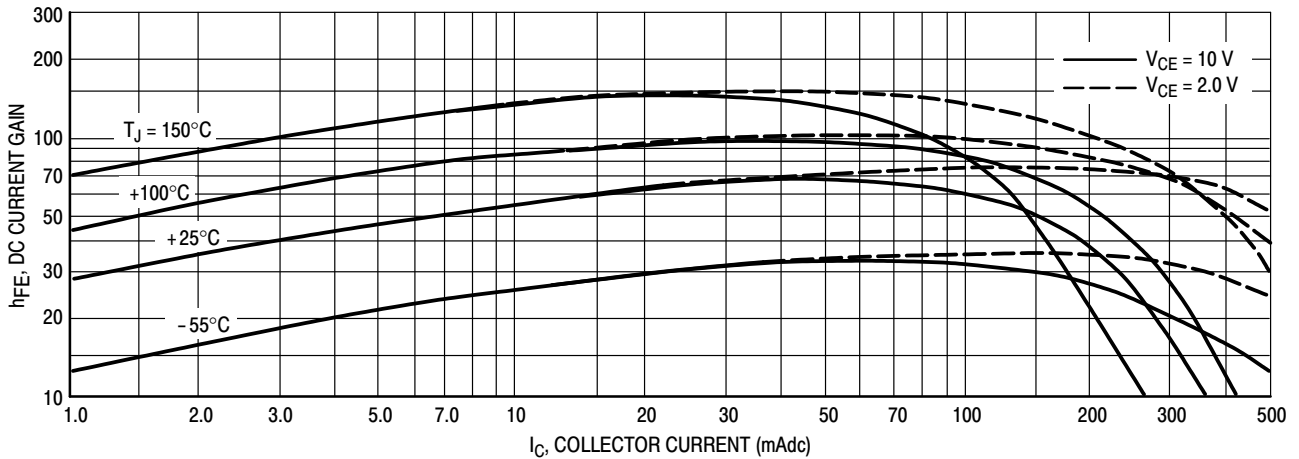
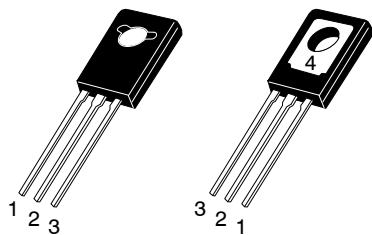
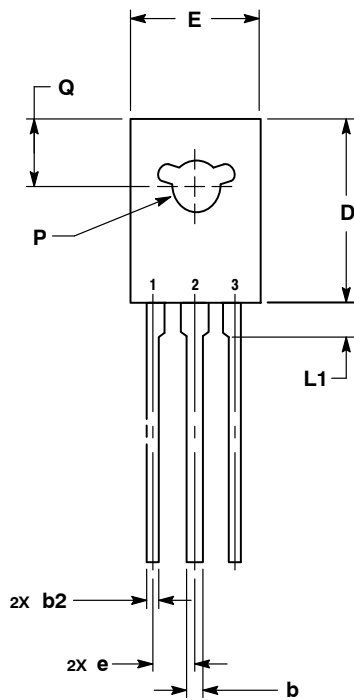


Figure 7. DC Current Gain

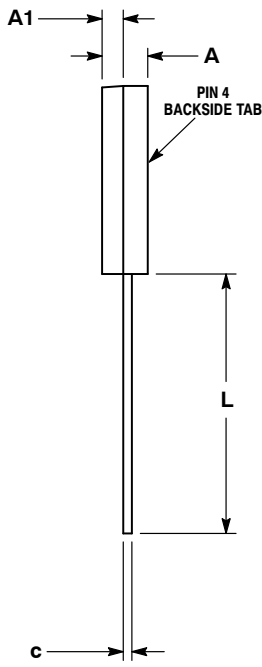


FRONT VIEW BACK VIEW

SCALE 1:1



FRONT VIEW



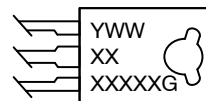
SIDE VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. NUMBER AND SHAPE OF LUGS OPTIONAL.

| DIM | MILLIMETERS | |
|-----|-------------|-------|
| | MIN | MAX |
| A | 2.40 | 3.00 |
| A1 | 1.00 | 1.50 |
| b | 0.60 | 0.90 |
| b2 | 0.51 | 0.88 |
| c | 0.39 | 0.63 |
| D | 10.60 | 11.10 |
| E | 7.40 | 7.80 |
| e | 2.04 | 2.54 |
| L | 14.50 | 16.63 |
| L1 | 1.27 | 2.54 |
| P | 2.90 | 3.30 |
| Q | 3.80 | 4.20 |

GENERIC MARKING DIAGRAM*



- Y = Year
- WW = Work Week
- XXXXX = Device Code
- G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "μ", may or may not be present. Some products may not follow the Generic Marking.

| | | | | |
|---------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|
| <p>STYLE 1: PIN 1. EMITTER 2., 4. COLLECTOR 3. BASE</p> | <p>STYLE 2: PIN 1. CATHODE 2., 4. ANODE 3. GATE</p> | <p>STYLE 3: PIN 1. BASE 2., 4. COLLECTOR 3. EMITTER</p> | <p>STYLE 4: PIN 1. ANODE 1 2., 4. ANODE 2 3. GATE</p> | <p>STYLE 5: PIN 1. MT 1 2., 4. MT 2 3. GATE</p> |
| <p>STYLE 6: PIN 1. CATHODE 2., 4. GATE 3. ANODE</p> | <p>STYLE 7: PIN 1. MT 1 2., 4. GATE 3. MT 2</p> | <p>STYLE 8: PIN 1. SOURCE 2., 4. GATE 3. DRAIN</p> | <p>STYLE 9: PIN 1. GATE 2., 4. DRAIN 3. SOURCE</p> | <p>STYLE 10: PIN 1. SOURCE 2., 4. DRAIN 3. GATE</p> |

| | | |
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