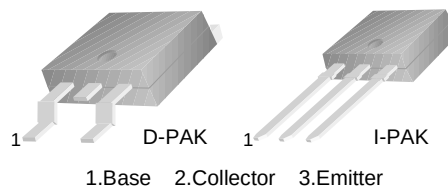


## MJD44H11

MJD44H11

### General Purpose Power and Switching Such as Output or Driver Stages in Applications D-PAK for Surface Mount Applications

- Load Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK, " - I" Suffix)
- Electrically Similar to Popular MJE44H
- Fast Switching Speeds
- Low Collector Emitter Saturation Voltage



### NPN Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                                        | Value      | Units            |
|-----------|--------------------------------------------------|------------|------------------|
| $V_{CEO}$ | Collector-Emitter Voltage                        | 80         | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | 5          | V                |
| $I_C$     | Collector Current (DC)                           | 8          | A                |
| $I_{CP}$  | Collector-Current (Pulse)                        | 16         | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 20         | W                |
|           | Collector Dissipation ( $T_a=25^\circ\text{C}$ ) | 1.75       | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 65 ~ 150 | $^\circ\text{C}$ |

#### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                             | Test Condition                                                                       | Min.     | Typ. | Max. | Units         |
|----------------|---------------------------------------|--------------------------------------------------------------------------------------|----------|------|------|---------------|
| $V_{CEO(sus)}$ | *Collector-Emitter Sustaining Voltage | $I_C = 30\text{mA}$ , $I_B = 0$                                                      | 80       |      |      | V             |
| $I_{CEO}$      | Collector Cut-off Current             | $V_{CE} = 80\text{V}$ , $I_B = 0$                                                    |          |      | 10   | $\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cut-off Current               | $V_{BE} = 5\text{V}$ , $I_C = 0$                                                     |          |      | 50   | $\mu\text{A}$ |
| $h_{FE}$       | *DC Current Gain                      | $V_{CE} = 1\text{V}$ , $I_C = 2\text{A}$<br>$V_{CE} = 1\text{V}$ , $I_C = 4\text{A}$ | 60<br>40 |      |      |               |
| $V_{CE(sat)}$  | *Collector-Emitter Saturation Voltage | $I_C = 8\text{A}$ , $I_B = 0.4\text{A}$                                              |          |      | 1    | V             |
| $V_{BE(on)}$   | *Base-Emitter ON Voltage              | $I_C = 8\text{A}$ , $I_B = 0.8\text{A}$                                              |          |      | 1.5  | V             |
| $f_T$          | Current Gain Bandwidth Product        | $V_{CE} = 10\text{V}$ , $I_C = 0.5\text{A}$                                          |          | 50   |      | MHz           |
| $C_{ob}$       | Output Capacitance                    | $V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$                                            |          | 130  |      | pF            |
| $t_{ON}$       | Turn ON Time                          | $I_C = 5\text{A}$<br>$I_{B1} = - I_{B2} = 0.5\text{A}$                               |          | 300  |      | ns            |
| $t_{STG}$      | Storage Time                          |                                                                                      |          | 500  |      | ns            |
| $t_F$          | Fall Time                             |                                                                                      |          | 140  |      | ns            |

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

## Typical Characteristics

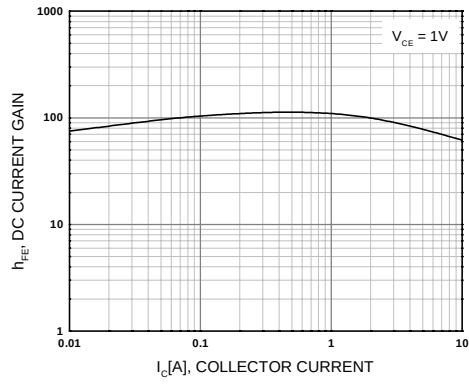


Figure 1. DC current Gain

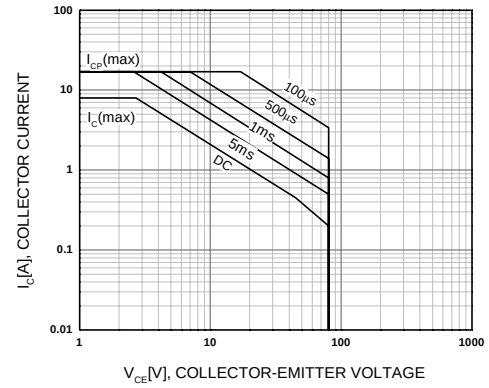


Figure 2. Safe Operating Area

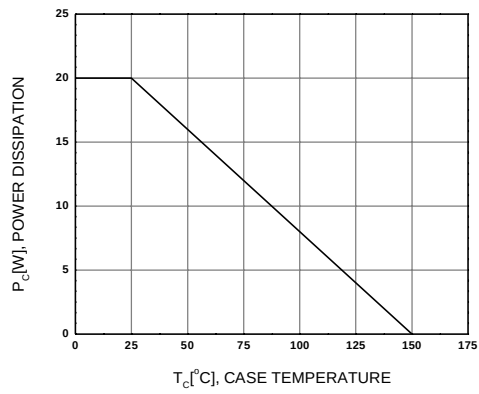
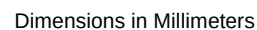


Figure 3. Power Derating

## D-PAK

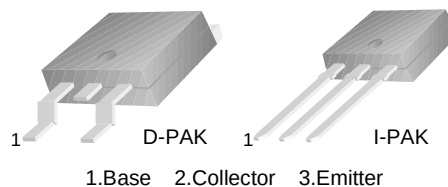


# MJD45H11

MJD45H11

## General Purpose Power and Switching Such as Output or Driver Stages in Applications D-PAK for Surface Mount Applications

- Load Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK: "-I" Suffix)
- Electrically Similar to Popular MJE45H
- Fast Switching Speeds
- Low Collector Emitter Saturation Voltage



## PNP Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C=25^{\circ}\text{C}$ unless otherwise noted

| Symbol    | Parameter                                          | Value      | Units              |
|-----------|----------------------------------------------------|------------|--------------------|
| $V_{CEO}$ | Collector-Emitter Voltage                          | - 80       | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                               | - 5        | V                  |
| $I_C$     | Collector Current (DC)                             | - 8        | A                  |
| $I_{CP}$  | Collector Current (Pulse)                          | - 16       | A                  |
| $P_C$     | Collector Dissipation ( $T_C=25^{\circ}\text{C}$ ) | 20         | W                  |
|           | Collector Dissipation ( $T_a=25^{\circ}\text{C}$ ) | 1.75       | W                  |
| $T_J$     | Junction Temperature                               | 150        | $^{\circ}\text{C}$ |
| $T_{STG}$ | Storage Temperature                                | - 55 ~ 150 | $^{\circ}\text{C}$ |

### Electrical Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

| Symbol         | Parameter                             | Test Condition                                                                               | Min.     | Typ. | Max.  | Units         |
|----------------|---------------------------------------|----------------------------------------------------------------------------------------------|----------|------|-------|---------------|
| $V_{CEO(sus)}$ | *Collector-Emitter Sustaining Voltage | $I_C = - 30\text{mA}$ , $I_B = 0$                                                            | - 80     |      |       | V             |
| $I_{CEO}$      | Collector Cut-off Current             | $V_{CE} = - 80\text{V}$ , $I_B = 0$                                                          |          |      | - 10  | $\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cut-off Current               | $V_{BE} = - 5\text{V}$ , $I_C = 0$                                                           |          |      | - 50  | $\mu\text{A}$ |
| $h_{FE}$       | *DC Current Gain                      | $V_{CE} = - 1\text{V}$ , $I_C = - 2\text{A}$<br>$V_{CE} = - 1\text{V}$ , $I_C = - 4\text{A}$ | 60<br>40 |      |       |               |
| $V_{CE(sat)}$  | *Collector-Emitter Saturation Voltage | $I_C = - 8\text{A}$ , $I_B = - 0.4\text{A}$                                                  |          |      | - 1   | V             |
| $V_{BE(on)}$   | *Base-Emitter Saturation Voltage      | $I_C = - 8\text{A}$ , $I_B = - 0.8\text{A}$                                                  |          |      | - 1.5 | V             |
| $f_T$          | Current Gain Bandwidth Product        | $V_{CE} = - 10\text{A}$ , $I_C = - 0.5\text{A}$                                              |          | 40   |       | MHz           |
| $C_{ob}$       | Collector Capacitance                 | $V_{CB} = - 10\text{V}$ , $f = 1\text{MHz}$                                                  |          | 230  |       | pF            |
| $t_{ON}$       | Turn On Time                          | $I_C = - 5\text{A}$<br>$I_{B1} = - I_{B2} = - 0.5\text{A}$                                   |          | 135  |       | ns            |
| $t_{STG}$      | Storage Time                          |                                                                                              |          | 500  |       | ns            |
| $t_F$          | Fall Time                             |                                                                                              |          | 100  |       | ns            |

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

## Typical Characteristics

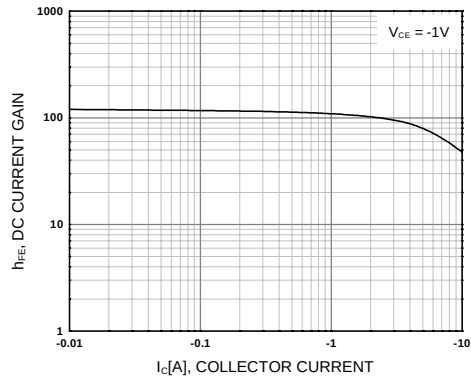


Figure 1. DC current Gain

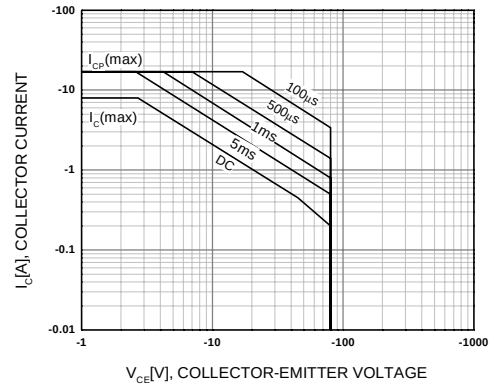


Figure 2. Safe Operating Area

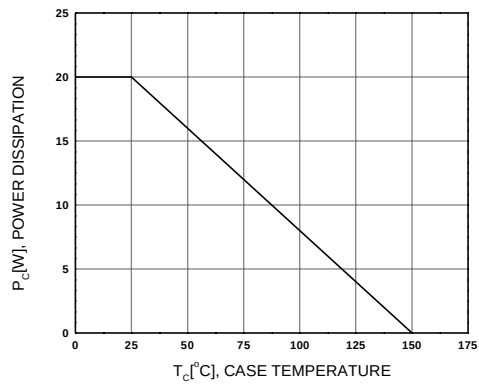
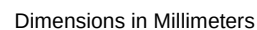


Figure 3. Power Derating

## D-PAK



Technical drawing of a 2.30TYP component, showing three views: top, side, and front views. The dimensions are as follows:

- Top View:**
  - Overall width:  $6.60 \pm 0.20$
  - Inner width:  $5.34 \pm 0.20$
  - Side flange width (each):  $0.50$
  - Central hole diameter:  $0.60 \pm 0.20$
  - Flange thickness:  $0.70 \pm 0.20$
  - Overall height:  $6.10 \pm 0.20$
  - Pin diameter:  $0.80 \pm 0.10$
  - Pin length:  $1.80 \pm 0.20$
  - Pin spacing (center-to-center):  $2.30 \text{ TYP}$  [2.30 ± 0.20]
  - Pin length (from base):  $9.30 \pm 0.30$
  - Pin tip diameter:  $0.76 \pm 0.10$
  - Pin tip length:  $\text{MAX} 0.96$
- Side View:**
  - Overall height:  $16.10 \pm 0.30$
  - Top flange width:  $2.30 \pm 0.20$
  - Pin diameter:  $0.50 \pm 0.10$
- Front View:**
  - Overall width:  $6.60 \pm 0.20$
  - Pin spacing (center-to-center):  $2.30 \text{ TYP}$  [2.30 ± 0.20]

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