



Micro Commercial Components



Micro Commercial Components  
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# DMMT3906

## PNP Small Signal Transistors

### Features

- Halogen free available upon request by adding suffix "-HF"
- Epitaxial Planar Die Construction
- Ultra-small surface mount package
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: K3Q

### Maximum Ratings

| Symbol     | Parameter                                   | Rating      | Unit          |
|------------|---|-------------|---------------|
| $V_{CE0}$  | Collector-Emitter Voltage                   | -40         | V             |
| $V_{CB0}$  | Collector-Base Voltage                      | -40         | V             |
| $V_{EB0}$  | Emitter-Base Voltage                        | -5.0        | V             |
| $I_C$      | Collector Current-Continuous <sup>(1)</sup> | -200        | mA            |
| $P_C$      | Power dissipation <sup>(1)</sup>            | 200         | mW            |
| $R_{THJA}$ | Thermal Resistance                          | 625         | $^{\circ}C/W$ |
| $T_J$      | Junction Temperature                        | -55 to +150 | $^{\circ}C$   |
| $T_{STG}$  | Storage Temperature                         | -55 to +150 | $^{\circ}C$   |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Max | Units |
|--------|-----------|-----|-----|-------|
|--------|-----------|-----|-----|-------|

#### OFF CHARACTERISTICS <sup>(2)</sup>

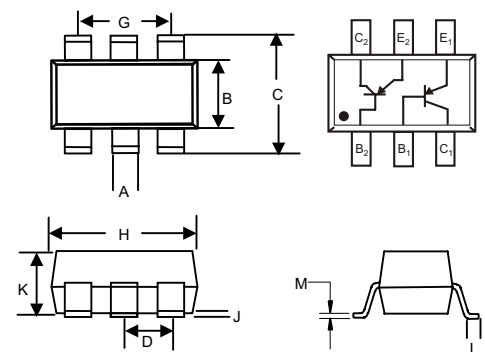
|               |  |      |     |      |
|---------------|--|------|-----|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage<br>( $I_C=-1.0mA$ , $I_B=0$ )            | -40  | --- | Vdc  |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage<br>( $I_C=-10\mu A$ , $I_E=0$ )             | -40  | --- | Vdc  |
| $V_{(BR)EBO}$ | Collector-Emitter Breakdown Voltage<br>( $I_E=-10\mu A$ , $I_C=0$ )          | -5.0 | --- | Vdc  |
| $I_{CEX}$     | Collector-Base Cutoff Current<br>( $V_{CE}=-30Vdc$ , $V_{EB(OFF)}=-3.0Vdc$ ) | ---  | -50 | nAdc |
| $I_{BL}$      | Emitter-Base Cutoff Current<br>( $V_{CE}=-30Vdc$ , $V_{EB(OFF)}=-3.0Vdc$ )   | ---  | -50 | nAdc |

#### ON CHARACTERISTICS <sup>(2)</sup>

|               |   |                             |                |     |
|---------------|---|-----------------------------|----------------|-----|
| $h_{FE}$      | DC Current Gain<br>( $I_C=-100\mu A$ , $V_{CE}=-1.0Vdc$ )<br>( $I_C=-1.0mA$ , $V_{CE}=-1.0Vdc$ )<br>( $I_C=-10mA$ , $V_{CE}=-1.0Vdc$ )<br>( $I_C=-50mA$ , $V_{CE}=-1.0Vdc$ )<br>( $I_C=-100mA$ , $V_{CE}=-1.0Vdc$ ) | 60<br>80<br>100<br>60<br>30 | ---            | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C=-10mA$ , $I_B=-1.0mA$ )<br>( $I_C=-50mA$ , $I_B=-5.0mA$ )  | ---                         | -0.25<br>-0.40 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage<br>( $I_C=-10mA$ , $I_B=-1.0mA$ )<br>( $I_C=-50mA$ , $I_B=-5.0mA$ )   | -0.65<br>---                | -0.85<br>-0.95 | Vdc |

Note: 1. Valid provided that terminals are kept at ambient temperature.

### SOT-363



| DIM | INCHES |      | MM          |      | NOTE |
|-----|--------|------|-------------|------|------|
|     | MIN    | MAX  | MIN         | MAX  |      |
| A   | .006   | .014 | 0.15        | 0.35 |      |
| B   | .045   | .053 | 1.15        | 1.35 |      |
| C   | .085   | .096 | 2.15        | 2.45 |      |
| D   | .026   |      | 0.65Nominal |      |      |
| G   | .047   | .055 | 1.20        | 1.40 |      |
| H   | .071   | .087 | 1.80        | 2.20 |      |
| J   | ---    | .004 | ---         | 0.10 |      |
| K   | .035   | .043 | 0.90        | 1.10 |      |
| L   | .010   | .018 | 0.26        | 0.46 |      |
| M   | .003   | .006 | 0.08        | 0.15 |      |

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## SMALL SIGNAL CHARACTERISTICS

|           |  |     |     |     |
|-----------|--|-----|-----|-----|
| $C_{obo}$ | Output Capacitance<br>( $V_{CB}=-5.0Vdc, f=1.0MHz, I_E=0$ )                  | --- | 4.5 | pF  |
| $f_T$     | Current Gain-Bandwidth Product<br>( $V_{CE}=-20Vdc, I_C=-10mAdc, f=100MHz$ ) | 250 | --- | MHz |

## SWITCHING CHARACTERISTICS

|       |              |                                       |     |     |    |
|-------|--------------|---------------------------------------|-----|-----|----|
| $t_d$ | Delay Time   | $V_{CC}=-3.0Vdc, I_C=-10mAdc,$        | --- | 35  | ns |
| $t_r$ | Rise Time    | $V_{BE(off)}=0.5Vdc, I_{B1}=-1.0mAdc$ | --- | 35  | ns |
| $t_s$ | Storage Time | $V_{CC}=-3.0Vdc, I_C=-10mAdc,$        | --- | 225 | ns |
| $t_f$ | Fall Time    | $I_{B1}=I_{B2}=-1.0mAdc$              | --- | 75  | ns |

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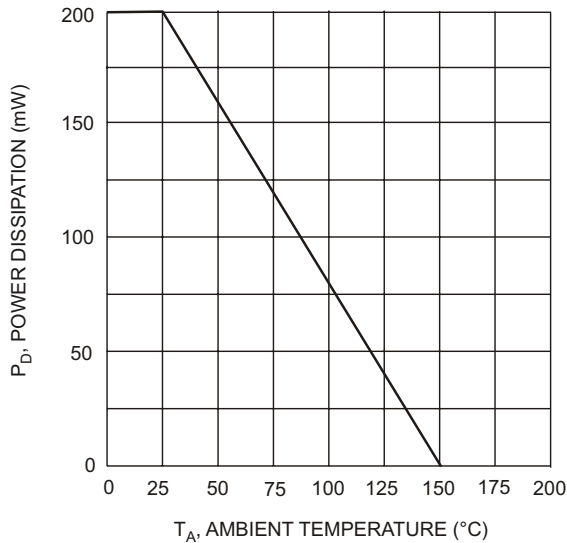


Fig. 1, Max Power Dissipation vs Ambient Temperature

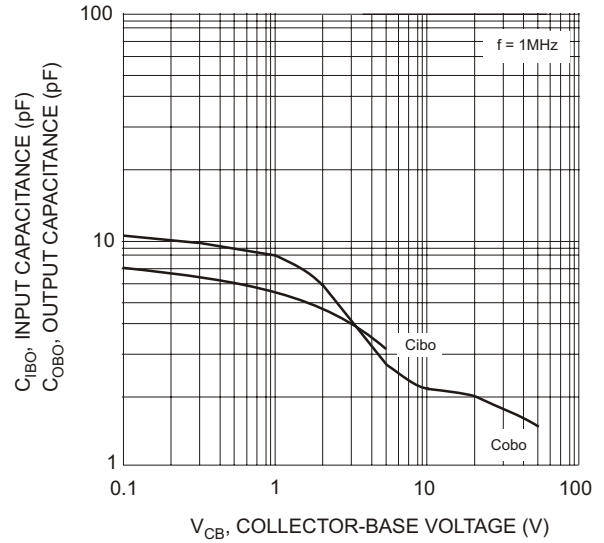


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

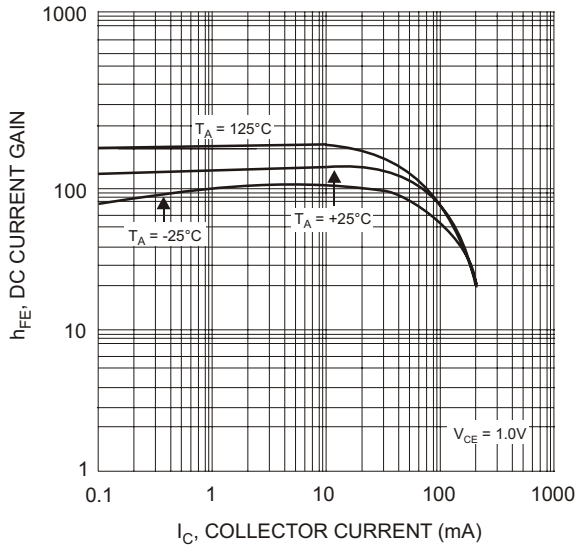


Fig. 3, Typical DC Current Gain vs Collector Current

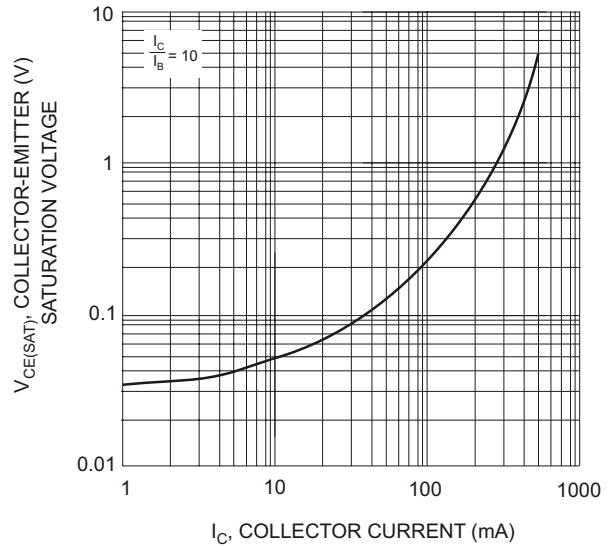


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

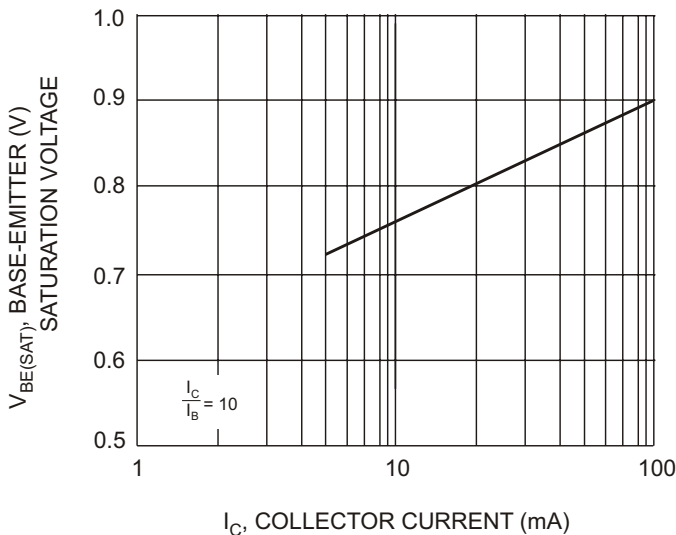


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current



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### Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel; 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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