Micro Commercial Components

Micro Commercial Components
130 W Cochran St, Unit B
Simi Valley, CA 93065
Tel:818-701-4933

# 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
- Moisure Sensitivity Level 1
- Marking: K3Q

## Maximum Ratings

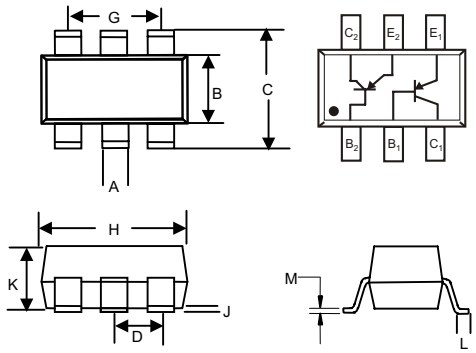
| Symbol | Parameter | Rating | Unit |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | -40 | V |
| $V_{CBO}$ | Collector-Base Voltage | -40 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5.0 | V |
| $I_C$ | Collector Current-Continuous (1) | -200 | mA |
| $P_C$ | Power dissipation (1) | 200 | mW |
| $R_{THJA}$ | Thermal Resistance | 625 | °C/W |
| $T_J$ | Junction Temperature | -55 to +150 | °C |
| $T_{STG}$ | Storage Temperature | -55 to +150 | °C |

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Max | Units |
|---|---|---|---|---|
| **OFF CHARACTERISTICS (2)** | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage ($I_C$=-1.0mAdc, $I_B$=0) | -40 | --- | Vdc |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C$=-10uAdc, $I_E$=0) | -40 | --- | Vdc |
| $V_{(BR)EBO}$ | Collector-Emitter Breakdown Voltage ($I_E$=-10uAdc, $I_C$=0) | -5.0 | --- | Vdc |
| $I_{CEX}$ | Collector-Base Cutoff Current ($V_{CE}$=-30Vdc, $V_{EB(OFF)}$=-3.0Vdc) | --- | -50 | nAdc |
| $I_{BL}$ | Emitter-Base Cutoff Current ($V_{CE}$=-30Vdc, $V_{EB(OFF)}$=-3.0Vdc) | --- | -50 | nAdc |
| **ON CHARACTERISTICS (2)** | | | | |
| $h_{FE}$ | DC Current Gain<br>($I_C$=-100uAdc, $V_{CE}$=-1.0Vdc)<br>($I_C$=-1.0mAdc, $V_{CE}$=-1.0Vdc)<br>($I_C$=-10mAdc, $V_{CE}$=-1.0Vdc)<br>($I_C$=-50mAdc, $V_{CE}$=-1.0Vdc)<br>($I_C$=-100mAdc, $V_{CE}$=-1.0Vdc) | <br>60<br>80<br>100<br>60<br>30 | <br>---<br>---<br>300<br>---<br>--- | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>($I_C$=-10mAdc, $I_B$=-1.0mAdc)<br>($I_C$=-50mAdc, $I_B$=-5.0mAdc) | <br>--- | <br>-0.25<br>-0.40 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage<br>($I_C$=-10mAdc, $I_B$=-1.0mAdc)<br>($I_C$=-50mAdc, $I_B$=-5.0mAdc) | <br>-0.65<br>--- | <br>-0.85<br>-0.95 | Vdc |

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

SOT-363




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| | INCHES | | MM | | |
| DIM | MIN | MAX | MIN | MAX | NOTE |
| A | 0.006 | 0.014 | 0.15 | 0.35 | |
| B | 0.045 | 0.053 | 1.15 | 1.35 | |
| C | 0.079 | 0.096 | 2.00 | 2.45 | |
| D | 0.026 Nominal | | 0.65 Nominal | | |
| G | 0.047 | 0.055 | 1.20 | 1.40 | |
| H | 0.071 | 0.087 | 1.80 | 2.20 | |
| J | --- | 0.004 | --- | 0.10 | |
| K | 0.035 | 0.043 | 0.90 | 1.10 | |
| L | 0.010 | 0.018 | 0.26 | 0.46 | |
| M | 0.003 | 0.006 | 0.08 | 0.15 | |

## SMALL SIGNAL CHARACTERISTICS

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

## SWITCHING CHARACTERISTICS

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

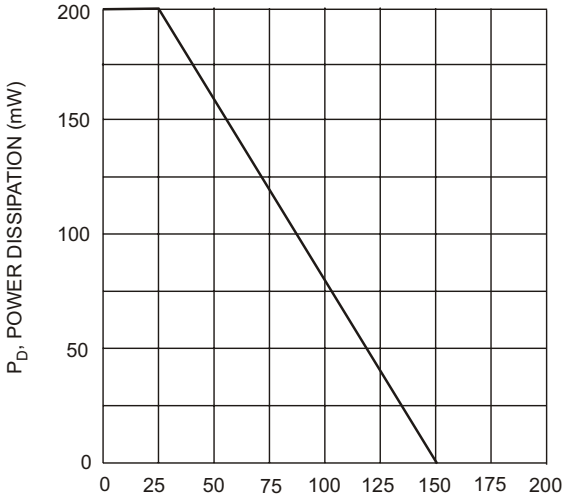



Fig. 1, Max Power Dissipation vs Ambient Temperature

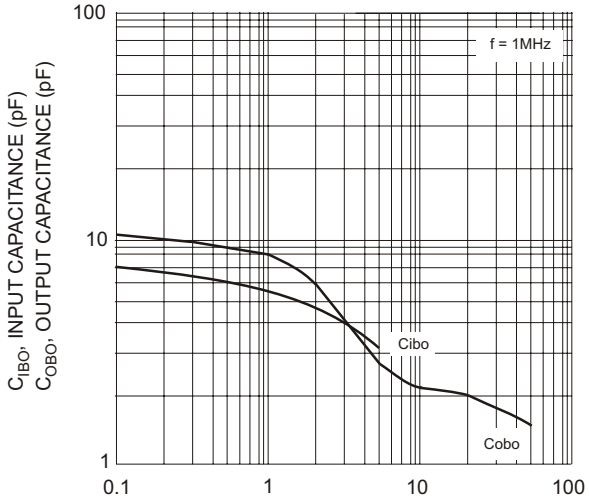



Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

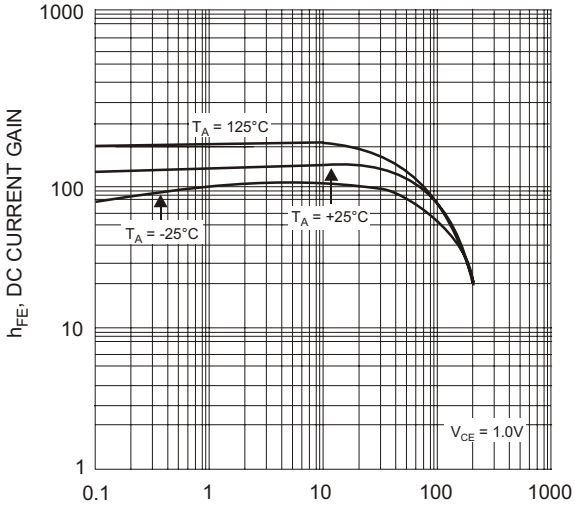



Fig. 3, Typical DC Current Gain vs Collector Current

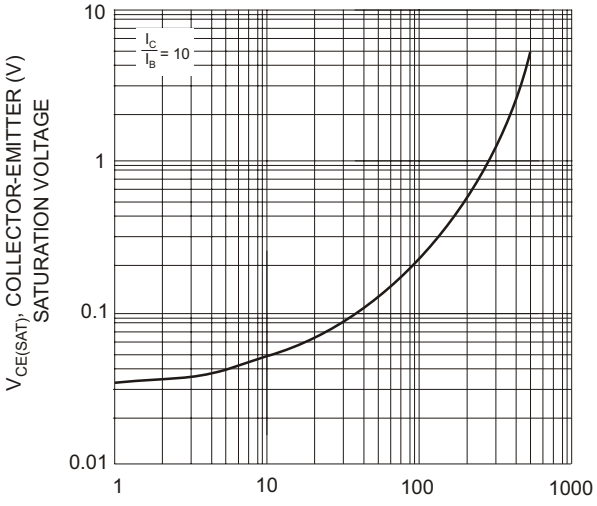



Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

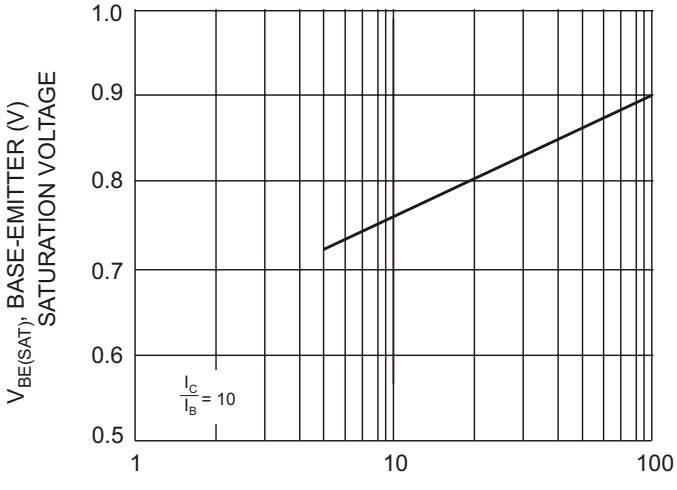



Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

Micro Commercial Components

## Ordering Information :

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

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

| ***IMPORTANT NOTICE*** |
|---|
| ***Micro Commercial Components Corp.*** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . ***Micro Commercial Components Corp .*** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold ***Micro Commercial Components Corp .*** and all the companies whose products are represented on our website, harmless against all damages. |
| ***LIFE SUPPORT*** |
| MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation. |
| ***CUSTOMER AWARENESS*** |
| Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors. |