



Micro Commercial Components

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20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

DMMT3904

Features

- Halogen free available upon request by adding suffix "-HF"
- Epitaxial Planar Die Construction
- Ultra-small surface mount package
- Available in RoHs compliant version
- 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:K4A

NPN Small Signal Transistors

Maximum Ratings

| Symbol | Rating | Rating | Unit |
|------------|---|-------------|---------------|
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{CBO} | Collector-Base Voltage | 60 | 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 | $^{\circ}C/W$ |
| 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 ⁽²⁾

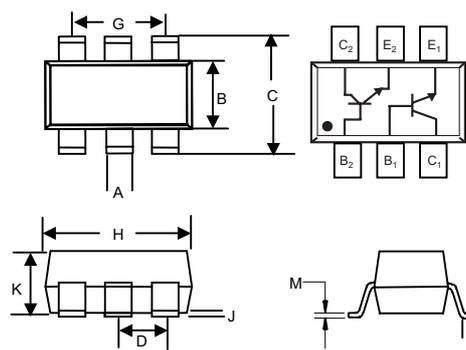
| | | | | |
|---------------|--|-----|-----|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage ($I_C=1.0mA$, $I_B=0$) | 40 | --- | Vdc |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C=10\mu A$, $I_E=0$) | 60 | --- | Vdc |
| $V_{(BR)EBO}$ | Collector-Emitter Breakdown Voltage ($I_E=10\mu A$, $I_C=0$) | 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 ($I_C=100\mu A$, $V_{CE}=1.0Vdc$) ($I_C=1.0mA$, $V_{CE}=1.0Vdc$) ($I_C=10mA$, $V_{CE}=1.0Vdc$) ($I_C=50mA$, $V_{CE}=1.0Vdc$) ($I_C=100mA$, $V_{CE}=1.0Vdc$) | 40 70 100 60 30 | --- | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=10mA$, $I_B=1.0mA$) ($I_C=50mA$, $I_B=5.0mA$) | --- | 0.20 0.30 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage ($I_C=10mA$, $I_B=1.0mA$) ($I_C=50mA$, $I_B=5.0mA$) | 0.65 --- | 0.85 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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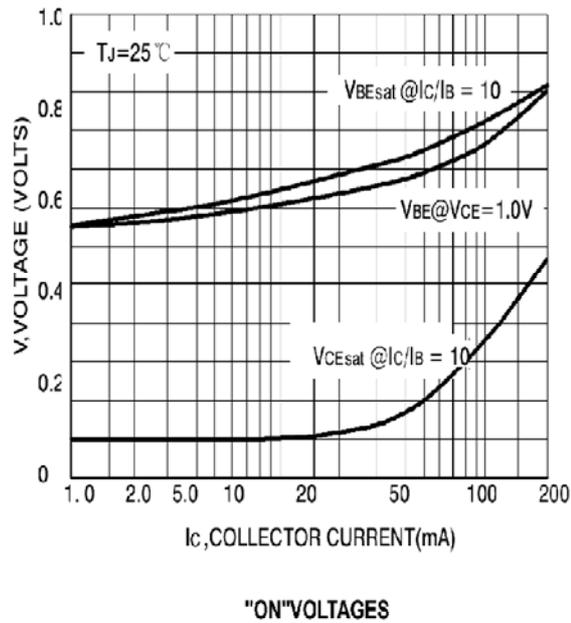
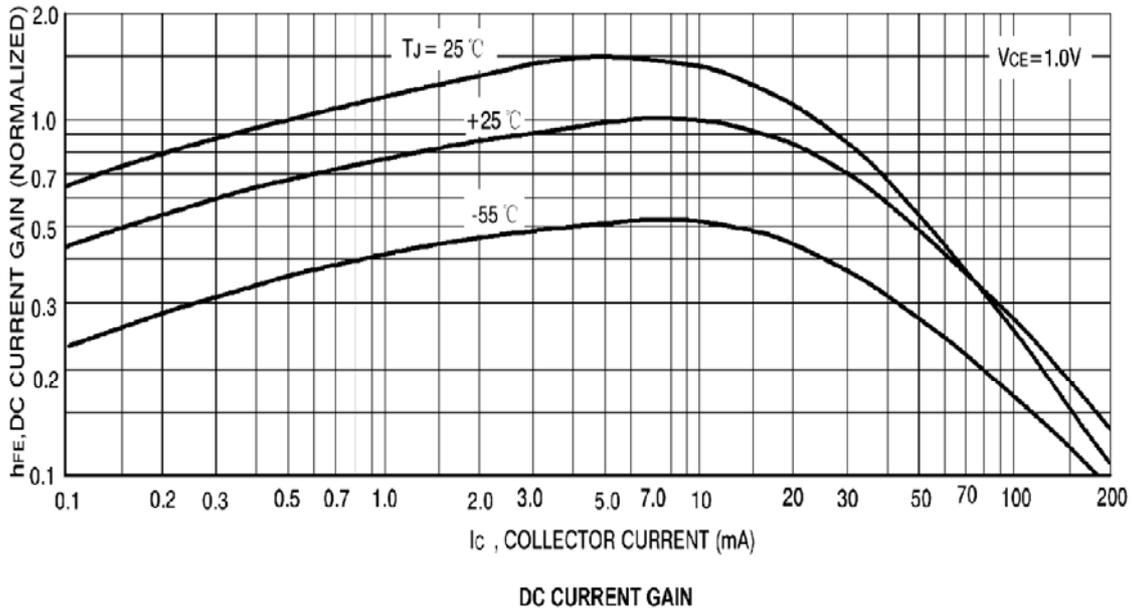
SMALL SIGNAL CHARACTERISTICS

| | | | | |
|-----------|--|-----|-----|-----|
| C_{obo} | Output Capacitance ($V_{CB}=5.0Vdc$, $f=1.0MHz$, $I_E=0$) | --- | 4.0 | pF |
| f_T | Current Gain-Bandwidth Product ($V_{CE}=20Vdc$, $I_C=10mAdc$, $f=100MHz$) | 300 | --- | 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 | $V_{CC}=3.0Vdc$, $I_C=10mAdc$, | --- | 200 | ns |
| t_f | Fall Time | $I_{B1}=I_{B2}=1.0mAdc$ | --- | 50 | ns |

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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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