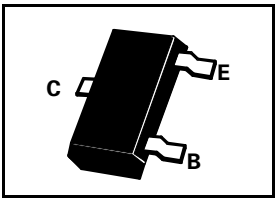
# SOT23 PNP SILICON PLANAR HIGH GAIN MEDIUM POWER TRANSISTOR

# FMMTL717

**ISSUE 1 – DECEMBER 1997**

FEATURES

Very low equivalent on-resistance; $\mathbf{R_{CE(sat)}}$=160mΩ at 1.25A




COMPLEMENTARY TYPE – FMMTL617

PARTMARKING DETAIL – L77

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -12 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -12 | V |
| Emitter-Base Voltage | $V_{EBO}$ | -5 | V |
| Continuous Collector Current | $I_C$ | -1.25 | A |
| Peak Pulse Current | $I_{CM}$ | -4 | A |
| Base Current | $I_B$ | -200 | mA |
| Power Dissipation at $T_{amb}$=25°C | $P_{tot}$ | -500 | mW |
| Operating and Storage Temperature Range | $T_j$:$T_{stg}$ | -55 to +150 | °C |

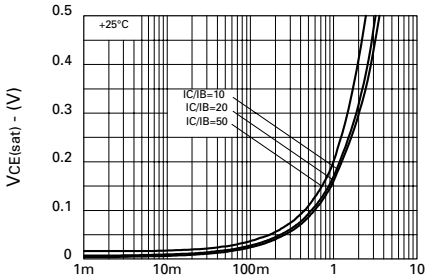
# FMMTL717

## ELECTRICAL CHARACTERISTICS (at $T_{amb}$ = 25°C).

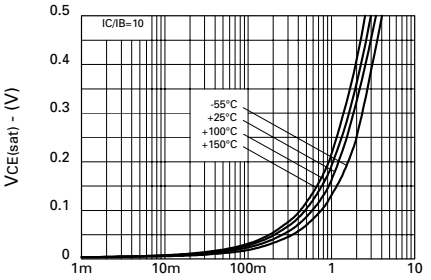
| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -12 | -35 | | V | $I_C$=-100μA |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -12 | -25 | | V | $I_C$=-10mA* |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | -8.5 | | V | $I_E$=-100μA |
| Collector Cut-Off Current | $I_{CBO}$ | | | -10 | nA | $V_{CB}$=-10V |
| Emitter Cut-Off Current | $I_{EBO}$ | | | -10 | nA | $V_{EB}$=-4V |
| Collector Cut-Off Current | $I_{CES}$ | | | -10 | nA | $V_{CE}$=-10V |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -24<br>-94<br>-160<br>-200 | -40<br>-140<br>-240<br>-290 | mV<br>mV<br>mV<br>mV | $I_C$=-100mA, $I_B$=-10mA*<br>$I_C$=-500mA, $I_B$=-20mA*<br>$I_C$=-1A, $I_B$=-50mA*<br>$I_C$=-1.25A,$I_B$=-50mA |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -970 | -1100 | mV | $I_C$=-1.25A, $I_B$=-50mA* |
| Base-Emitter Turn On Voltage | $V_{BE(on)}$ | | -875 | -1000 | mV | $I_C$=-1.25A, $V_{CE}$=-2V* |
| Static Forward Current Transfer Ratio | $h_{FE}$ | 300<br>300<br>180<br>100<br>50 | 490<br>450<br>275<br>180<br>110 | | | $I_C$=-10mA, $V_{CE}$=-2V<br>$I_C$=-100mA, $V_{CE}$=-2V*<br>$I_C$=-1A, $V_{CE}$=-2V*<br>$I_C$=-2A, $V_{CE}$=-2V*<br>$I_C$=-3A, $V_{CE}$=-2V* |
| Transition Frequency | $f_T$ | | 205 | | MHz | $I_C$=-50mA, $V_{CE}$=-10V<br>f=100MHz |
| Collector-Base Breakdown Voltage | $C_{obo}$ | | 15 | 20 | pF | $V_{CB}$=-10V, f=1MHz |
| Switching times | $t_{on}$<br>$t_{off}$ | | 76<br>149 | | ns<br>ns | $I_C$=-1A, $V_{CC}$=-10V<br>$I_{B1}$=$I_{B2}$=-10mA |

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

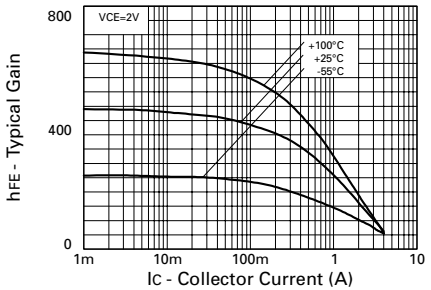
## TYPICAL CHARACTERISTICS



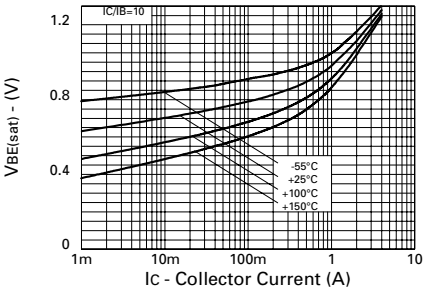

**VCE(sat) v IC**



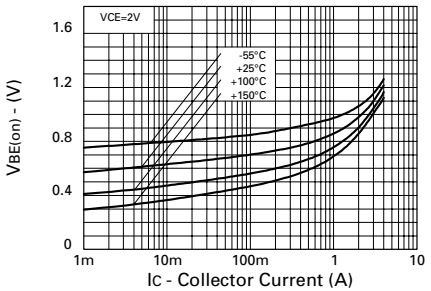

**VCE(sat) v IC**



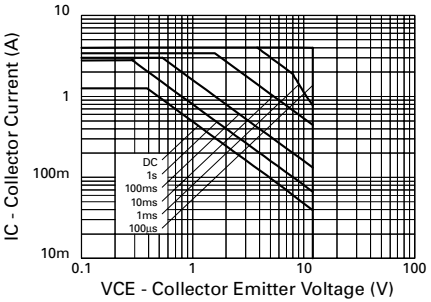

**hFE v IC**




**VBE(sat) v IC**




**VBE(on) v IC**




**Safe Operating Area**