

# FMMTA06

## SOT23 NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

### SUMMARY

$V_{(BR)CEO} > 80V$

$I_{C(cont)} = 500mA$

### DESCRIPTION

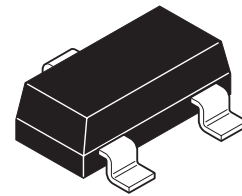
80V medium power NPN transistor in a compact SOT23 package

### FEATURES

- 80V  $V_{CEO}$
- Compact SOT23 package
- $H_{FE} 50 @ I_C = 100mA$

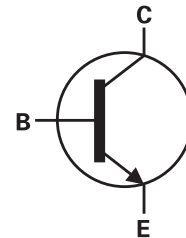
### APPLICATIONS

- Low power motor driving circuits



SOT23

### SYMBOL



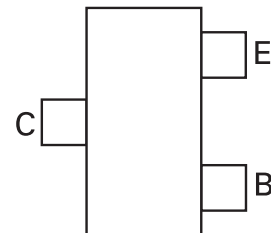
### ORDERING INFORMATION

| DEVICE    | REEL SIZE | TAPE WIDTH | QUANTITY PER REEL |
|-----------|-----------|------------|-------------------|
| FMMTA06TA | 7"        | 8mm        | 3,000             |

### DEVICE MARKING

- 1G

### PINOUT



TOP VIEW

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## ABSOLUTE MAXIMUM RATINGS

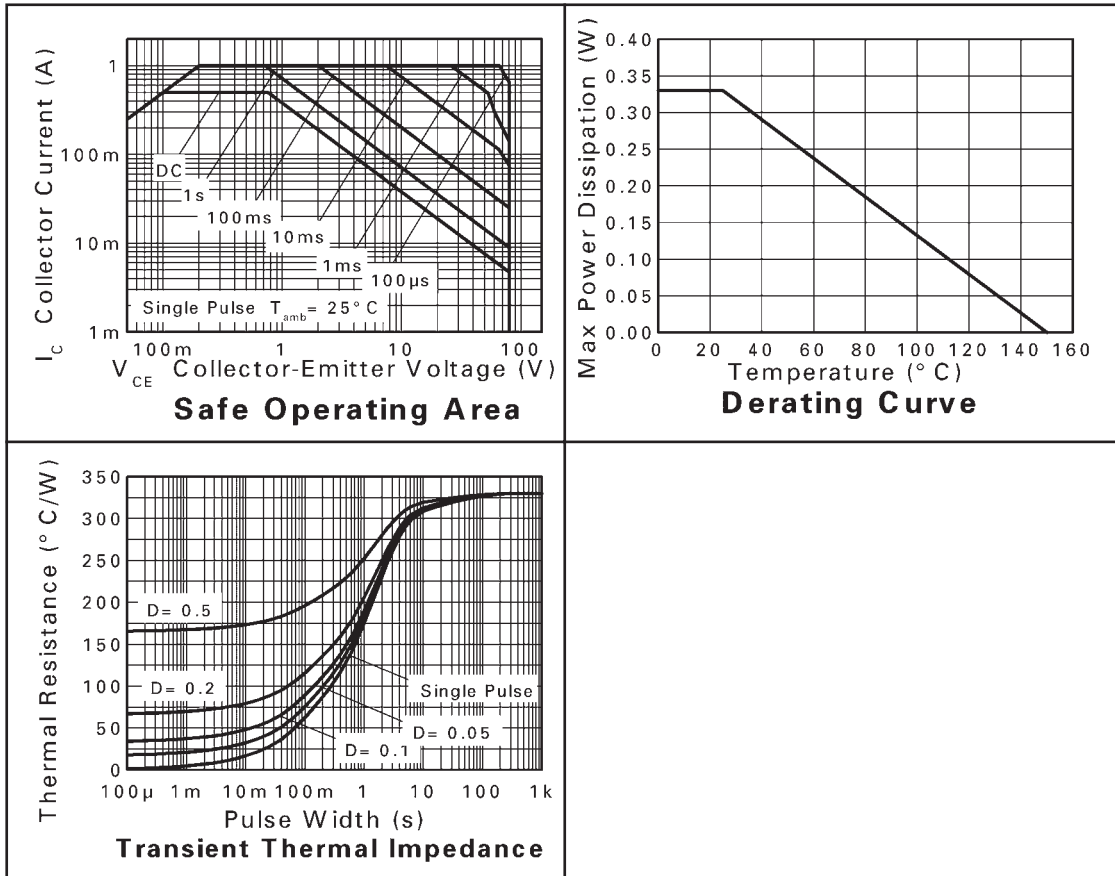
| PARAMETER                                    | SYMBOL         | LIMIT        | UNIT                 |
|----------------------------------------------|----------------|--------------|----------------------|
| Collector-base voltage                       | $V_{CBO}$      | 80           | V                    |
| Collector-emitter voltage                    | $V_{CEO}$      | 80           | V                    |
| Emitter-base voltage                         | $V_{EBO}$      | 4            | V                    |
| Peak pulse current                           | $I_{CM}$       | 1            | A                    |
| Continuous collector current                 | $I_C$          | 500          | mA                   |
| Base current                                 | $I_B$          | 100          | mA                   |
| Power dissipation @ $T_A = 25^\circ\text{C}$ | $P_D$          | 330          | mW                   |
| Linear derating factor                       |                | 2.64         | mW/ $^\circ\text{C}$ |
| Operating and storage temperature            | $T_j; T_{stg}$ | -55 to + 150 | $^\circ\text{C}$     |

## THERMAL RESISTANCE

| PARAMETER           | SYMBOL         | VALUE | UNIT               |
|---------------------|----------------|-------|--------------------|
| Junction to ambient | $R\theta_{JA}$ | 379   | $^\circ\text{C/W}$ |

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## CHARACTERISTICS



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## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated)

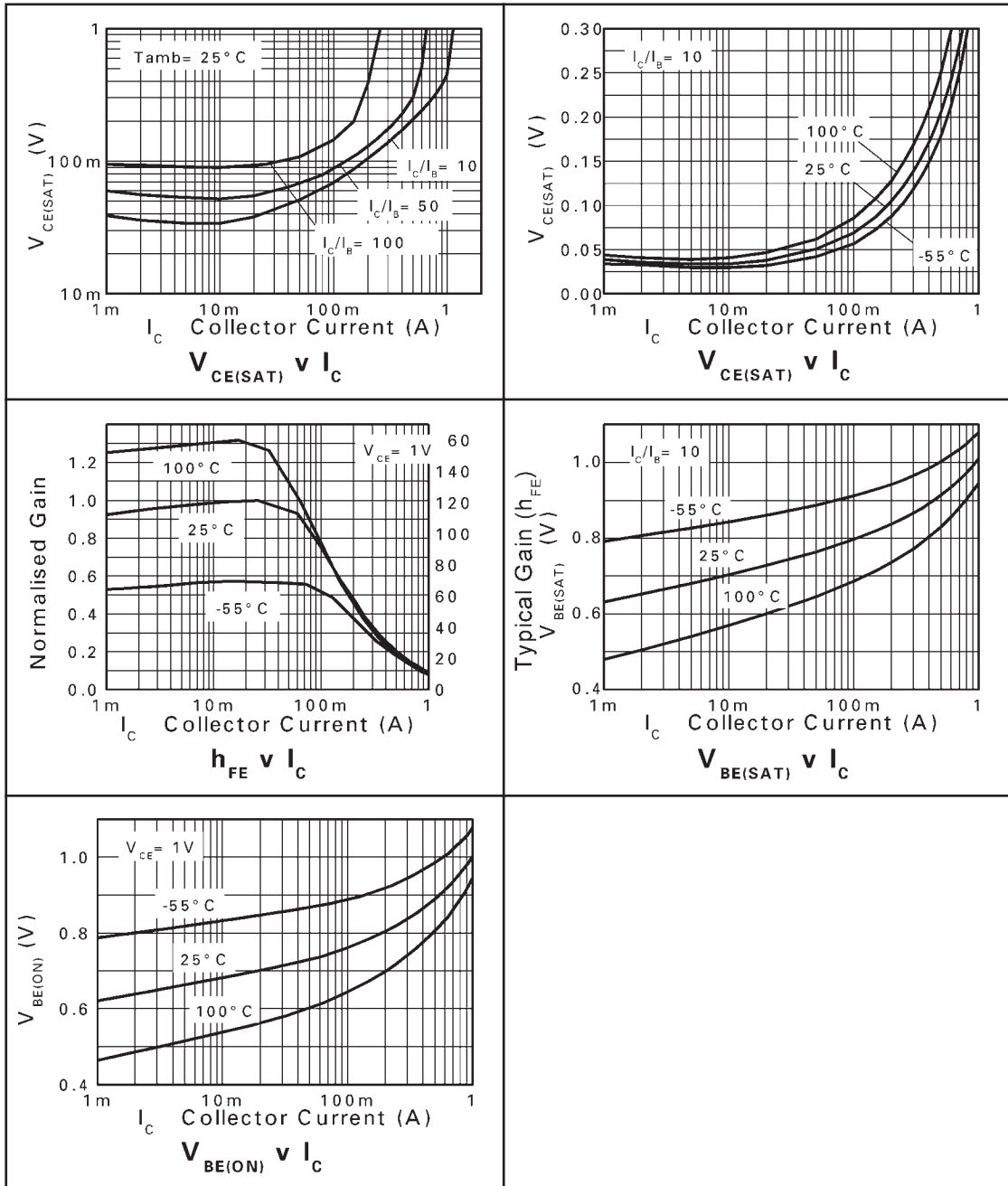
| PARAMETER                             | SYMBOL        | MIN.     | TYP. | MAX. | UNIT | CONDITIONS                                                  |
|---------------------------------------|---------------|----------|------|------|------|-------------------------------------------------------------|
| Collector-base breakdown voltage      | $V_{(BR)CBO}$ | 80       |      |      | V    | $I_C = 1mA$                                                 |
| Collector-emitter breakdown voltage   | $V_{(BR)CEO}$ | 80       |      |      | V    | $I_C = 10mA^*$                                              |
| Emitter-base breakdown voltage        | $V_{(BR)EBO}$ | 4        |      |      | V    | $I_E = 100\mu A$                                            |
| Collector-emitter cut-off current     | $I_{CES}$     |          |      | 100  | nA   | $V_{CES} = 60V$                                             |
| Collector-base cut-off current        | $I_{CBO}$     |          |      | 100  | nA   | $V_{CB} = 80V$                                              |
| Static forward current transfer ratio | $H_{FE}$      | 50<br>50 | 120  |      |      | $I_C = 10mA, V_{CE} = 1V^*$<br>$I_C = 100mA, V_{CE} = 1V^*$ |
| Collector-emitter saturation voltage  | $V_{CE(sat)}$ |          |      | 0.25 | V    | $I_C = 100mA, I_B = 10mA^*$                                 |
| Base-emitter turn-on voltage          | $V_{BE(on)}$  |          |      | 1.2  | V    | $I_C = 0.1A, V_{CE} = 1V^*$                                 |
| Transition frequency                  | $f_T$         | 100      |      |      |      | $I_C = 10mA, V_{CE} = 2V,$<br>$f = 100MHz$                  |

### NOTES

\* Measured under pulsed conditions. Pulse width= 300 $\mu$ S. Duty cycle  $\leq 2\%$

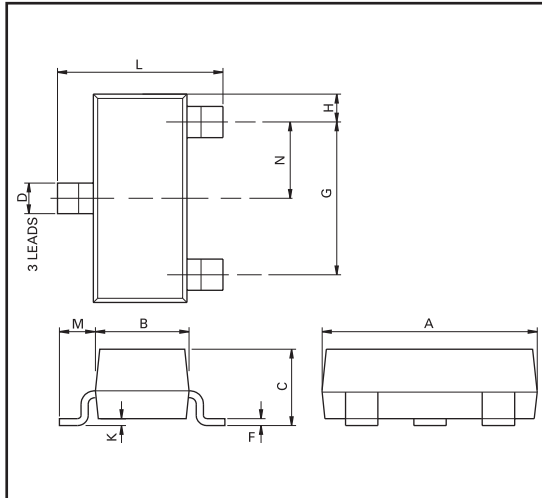
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## TYPICAL CHARACTERISTICS



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## PACKAGE OUTLINE



Controlling dimensions are in millimeters. Approximate conversions are given in inches

## PACKAGE DIMENSIONS

| DIM | Millimeters |      | Inches    |        | DIM | Millimeters |      | Inches     |        |
|-----|-------------|------|-----------|--------|-----|-------------|------|------------|--------|
|     | Min         | Max  | Min       | Max    |     | Min         | Max  | Max        | Max    |
| A   | 2.67        | 3.05 | 0.105     | 0.120  | H   | 0.33        | 0.51 | 0.013      | 0.020  |
| B   | 1.20        | 1.40 | 0.047     | 0.055  | K   | 0.01        | 0.10 | 0.0004     | 0.004  |
| C   | —           | 1.10 | —         | 0.043  | L   | 2.10        | 2.50 | 0.083      | 0.0985 |
| D   | 0.37        | 0.53 | 0.015     | 0.021  | M   | 0.45        | 0.64 | 0.018      | 0.025  |
| F   | 0.085       | 0.15 | 0.0034    | 0.0059 | N   | 0.95 NOM    |      | 0.0375 NOM |        |
| G   | 1.90 NOM    |      | 0.075 NOM |        | —   | —           |      | —          |        |

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