

# SOT23 PNP SILICON PLANAR SWITCHING TRANSISTOR

**FMMT2907**  
**FMMT2907A**

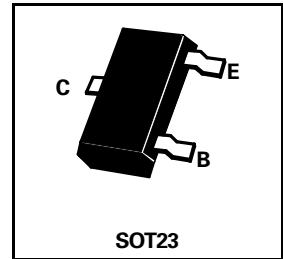
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## FEATURES

\* Fast switching

COMPLIMENTARY TYPES - FMMT2907 – FMMT2222  
- FMMT2907A – FMMT2222A

PARTMARKING DETAIL - FMMT2907 – 2BZ  
FMMT2907A – 2F  
FMMT2907R – 4P  
FMMT2907AR – 5P



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | FMMT2907    | FMMT2907A | UNIT        |
|--|----------------|-------------|-----------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | -60         |           | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | -40         | -60       | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | -5          |           | V           |
| Continuous Collector Current               | $I_C$          | -600        |           | mA          |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | $P_{tot}$      | 330         |           | mW          |
| Operating and Storage Temperature Range    | $T_j; T_{stg}$ | -55 to +150 |           | $^{\circ}C$ |

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

| PARAMETER                             | SYMBOL        | FMMT2907                    |              | FMMT2907A                     |              | UNIT          | CONDITIONS.  |
|---------------------------------------|---------------|-----------------------------|--------------|-------------------------------|--------------|---------------|--|
|                                       |               | MIN.                        | MAX.         | MIN.                          | MAX.         |               |  |
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | -40                         |              | -60                           |              | V             | $I_C = -10\mu A, I_E = 0$  |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | -60                         |              | -60                           |              | V             | $I_C = -10mA, I_B = 0^*$   |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | -5                          |              | -5                            |              | V             | $I_E = -10\mu A, I_C = 0$  |
| Collector-Emitter Cut-Off Current     | $I_{CEX}$     |                             | -50          |                               | -50          | nA            | $V_{CE} = -30V, V_{BE} = -0.5V$  |
| Collector Cut-Off Current             | $I_{CBO}$     |                             | -20<br>-20   |                               | -10<br>-10   | nA<br>$\mu A$ | $V_{CB} = -50V, I_E = 0$<br>$V_{CB} = -50V, I_E = 0, T_{amb} = 150^{\circ}C$   |
| Base Cut-Off Current                  | $I_B$         |                             | -50          |                               | -50          | nA            | $V_{CE} = -30V, V_{BE} = 0.5V$   |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                             | -0.4<br>-1.6 |                               | -0.4<br>-1.6 | V<br>V        | $I_C = -150mA, I_B = -15mA^*$<br>$I_C = -500mA, I_B = -50mA^*$   |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                             | -1.3<br>-2.6 |                               | -1.3<br>-2.6 | V<br>V        | $I_C = -150mA, I_B = -15mA^*$<br>$I_C = -500mA, I_B = -50mA^*$   |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 35<br>50<br>75<br>100<br>30 | 300          | 75<br>100<br>100<br>100<br>50 | 300          |               | $I_C = 0.1mA, V_{CE} = 10V$<br>$I_C = 1mA, V_{CE} = 10V$<br>$I_C = 10mA, V_{CE} = 10V$<br>$I_C = 150mA, V_{CE} = 10V^*$<br>$I_C = 500mA, V_{CE} = 10V^*$ |
| Transition Frequency                  | $f_T$         | 200                         |              | 200                           |              | MHz           | $I_C = 50mA, V_{CE} = 20V$<br>$f = 100MHz$   |

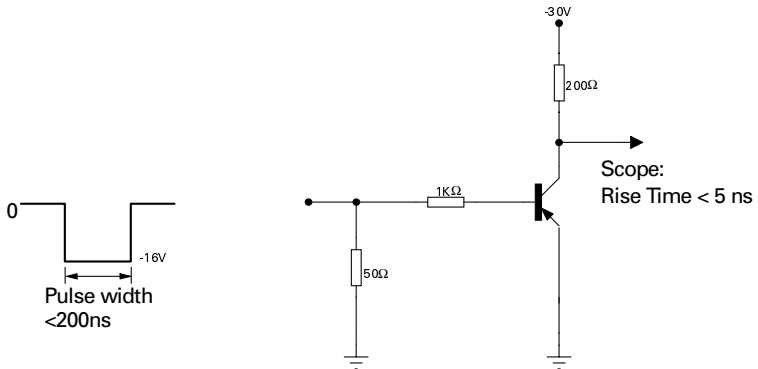
\*Measured under pulsed conditions. Pulse width=300 $\mu s$ . Duty cycle  $\leq 2\%$

# FMMT2907 FMMT2907A

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

| PARAMETER          | SYMBOL    | FMMT2907 |      | FMMT2907A |      | UNIT | CONDITIONS.   |
|--------------------|-----------|----------|------|-----------|------|------|---|
|                    |           | TYP.     | MAX. | TYP.      | MAX. |      |   |
| Output Capacitance | $C_{obo}$ |          | 8    |           | 8    | pF   | $V_{CE} = -10\text{V}$ , $I_E = 0$ ,<br>$f = 100\text{KHz}$   |
| Input Capacitance  | $C_{ibo}$ |          | 30   |           | 30   | pF   | $V_{BE} = -2\text{V}$ , $I_C = 0$<br>$f = 100\text{KHz}$  |
| Turn On Time       | $t_{on}$  | 26       | 50   | 26        | 50   | ns   | $V_{CE} = -30\text{V}$<br>$I_C = -150\text{mA}$ , $I_{B1} = -15\text{mA}$<br>(See Turn On Circuit)          |
| Turn Off Time      | $t_{off}$ | 70       | 110  | 70        | 110  | ns   | $V_{CE} = -6\text{V}$ , $I_C = -150\text{mA}$<br>$I_{B1} = I_{B2} = -15\text{mA}$<br>(See Turn Off Circuit) |

### TURN ON TIME – TEST CIRCUIT



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