

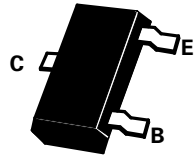
# SOT23 NPN SILICON PLANAR DARLINGTON TRANSISTORS

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COMPLEMENTARY TYPES - FMMTA12 - NONE  
FMMTA13 - FMMTA63  
FMMTA14 - FMMTA64

PARTMARKING DETAILS - FMMTA12 - 3W  
FMMTA13 - 1M  
FMMTA14 - 1N

FMMTA12  
FMMTA13  
FMMTA14



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL        | FMMTA12     | FMMTA13/14 | UNIT        |
|--------------------------------------------|---------------|-------------|------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$     |             | 40         | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$     |             | 40         | V           |
| Collector-Emitter Voltage                  | $V_{CES}$     | 20          | 40         | V           |
| Emitter-Base Voltage                       | $V_{EBO}$     | 10          |            | V           |
| Continuous Collector Current               | $I_C$         | 300         |            | 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 $T_{amb} = 25^{\circ}C$ ).

| PARAMETER                                                                                    | SYMBOL        | MIN.                           | MAX.       | UNIT     | CONDITIONS.                                                                                                                           |
|----------------------------------------------------------------------------------------------|---------------|--------------------------------|------------|----------|---------------------------------------------------------------------------------------------------------------------------------------|
| Collector-Emitter Breakdown Voltage<br>FMMTA12<br>FMMTA13/14                                 | $V_{(BR)CES}$ | 20<br>40                       |            | V<br>V   | $I_C=100\mu A, I_B=0^*$<br>$I_C=100\mu A, I_B=0^*$                                                                                    |
| Collector Cut-Off Current<br>FMMTA12                                                         | $I_{CES}$     |                                | 100        | nA       | $V_{CB}=15V, V_{BE}=0$                                                                                                                |
| Collector Cut-Off Current<br>FMMTA12<br>FMMTA13/14                                           | $I_{CBO}$     |                                | 100<br>100 | nA<br>nA | $V_{CB}=15V, I_E=0$<br>$V_{CB}=30V, I_E=0$                                                                                            |
| Emitter Cut-Off Current                                                                      | $I_{EBO}$     |                                | 100        | nA       | $V_{EB}=10V, I_C=0$                                                                                                                   |
| Static Forward Current Transfer Ratio<br>FMMTA12<br>FMMTA13<br>FMMTA13<br>FMMTA14<br>FMMTA14 | $h_{FE}$      | 20K<br>5K<br>10K<br>10K<br>20K |            |          | $I_C=10mA, V_{CE}=5V^*$<br>$I_C=10mA, V_{CE}=5V^*$<br>$I_C=100mA, V_{CE}=5V^*$<br>$I_C=10mA, V_{CE}=5V^*$<br>$I_C=100mA, V_{CE}=5V^*$ |
| Collector-Emitter Saturation Voltage<br>FMMTA12<br>FMMTA13/14                                | $V_{CE(sat)}$ |                                | 1.0<br>0.9 | V<br>V   | $I_C=10mA, I_B=0.01mA$<br>$I_C=100mA, I_B=0.1mA$                                                                                      |
| Base-Emitter On Voltage<br>FMMTA12<br>FMMTA13/14                                             | $V_{BE(on)}$  |                                | 1.4<br>2.0 | V<br>V   | $I_C=10mA, V_{CE}=5V^*$<br>$I_C=100mA, V_{CE}=5V^*$                                                                                   |

\*Measured under pulsed conditions. Pulse width =300 $\mu s$ . Duty cycle  $\leq 2\%$   
Spice parameter data is available upon request for these devices  
For typical graphs see FMMT38A datasheet