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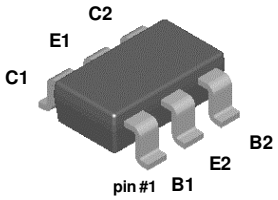
# FMBA14




**SuperSOT™-6**
**Mark: .1N**
**Dot denotes pin #1**

## NPN Multi-Chip Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 1.0 A. Sourced from Process 05.

### Absolute Maximum Ratings*

$T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CES}$ | Collector-Emitter Voltage | 30 | V |
| $V_{CBO}$ | Collector-Base Voltage | 30 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 10 | V |
| $I_C$ | Collector Current - Continuous | 1.2 | A |
| $T_J$, $T_{stg}$ | Operating and Storage Junction Temperature Range | -55 to +150 | °C |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES**:
**1)** These ratings are based on a maximum junction temperature of 150 degrees C.
**2)** These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics

$T_A$ = 25°C unless otherwise noted

| Symbol | Characteristic | Max | Units |
|---|---|---|---|
| | | FMBA14 | |
| $P_D$ | Total Device Dissipation<br>Derate above 25°C | 700<br>5.6 | mW<br>mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 180 | °C/W |

# NPN Multi-Chip Darlington Transistor

(continued)

## Electrical Characteristics

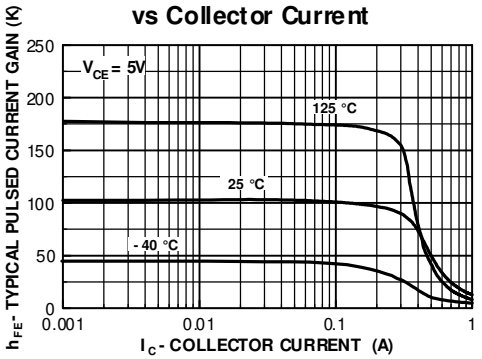
TA = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| $V_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 100 µA, $I_B$ = 0 | 30 | | | V |
| $I_{CBO}$ | Collector-Cutoff Current | $V_{CB}$ = 30 V, $I_E$ = 0 | | | 100 | nA |
| $I_{EBO}$ | Emitter-Cutoff Current | $V_{EB}$ = 10 V, $I_C$ = 0 | | | 100 | nA |
| **ON CHARACTERISTICS*** | | | | | | |
| $h_{FE}$ | DC Current Gain | $I_C$ = 10 mA, $V_{CE}$ = 5.0 V<br>$I_C$ = 100 mA, $V_{CE}$ = 5.0 V | 10K<br>20K | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 100 mA, $I_B$ = 0.1 mA | | | 1.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$ = 100 mA, $V_{CE}$ = 5.0 V | | | 2.0 | V |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | |
| $h_{fe}$ | Small Signal Current Gain | $I_C$ = 10 mA, $V_{CE}$ = 5.0 V,<br>f = 100 MHz | 1.25 | | | MHz |

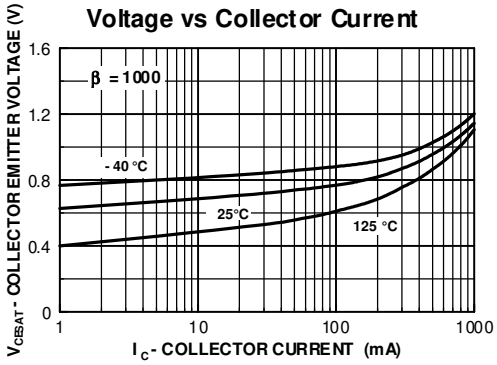
*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

## Typical Characteristics

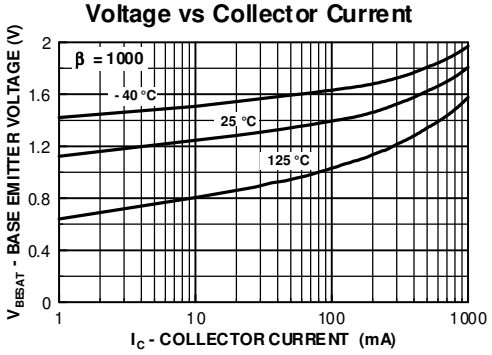
**Typical Pulsed Current Gain vs Collector Current**



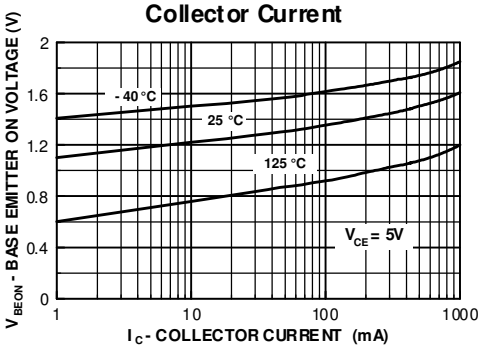

**Collector-Emitter Saturation Voltage vs Collector Current**




**Base-Emitter Saturation Voltage vs Collector Current**

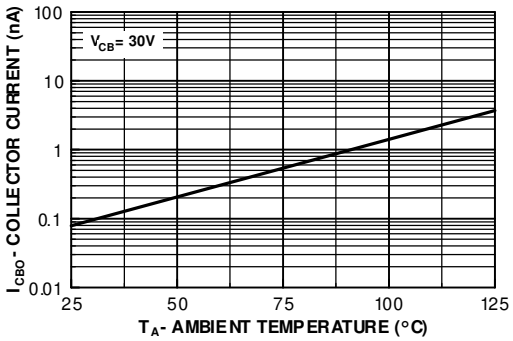



**Base Emitter ON Voltage vs Collector Current**

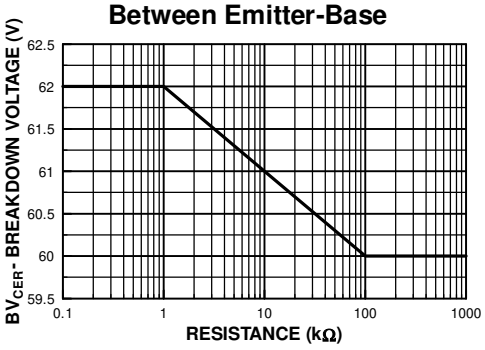


## Typical Characteristics (continued)

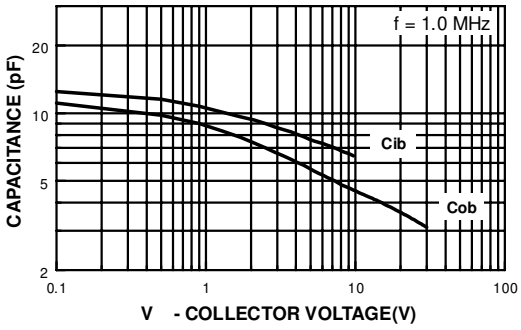
**Collector-Cutoff Current vs Ambient Temperature**



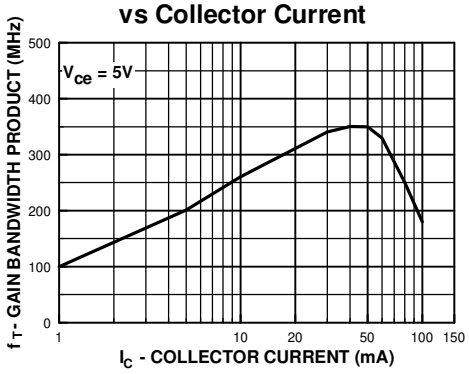

**Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base**



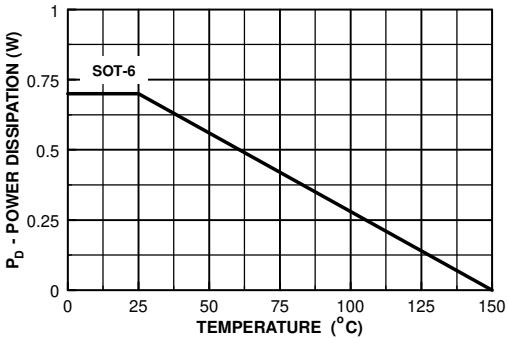

**Input and Output Capacitance vs Reverse Voltage**




**Gain Bandwidth Product vs Collector Current**




**Power Dissipation vs Ambient Temperature**



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