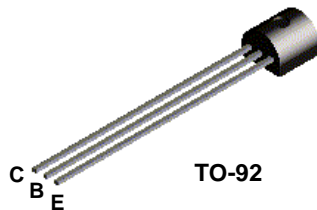
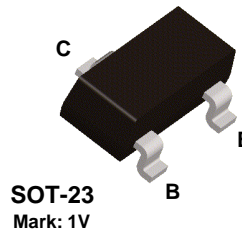


## 2N6427



## MMBT6427



### NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 1.0 A. Sourced from Process 05. See MPSA14 for characteristics.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>CBO</sub>	Collector-Base Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	12	V
I <sub>C</sub>	Collector Current - Continuous	1.2	A
T <sub>J</sub> , T <sub>stg</sub>	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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		2N6427	*MMBT6427	
P <sub>D</sub>	Total Device Dissipation	625	350	mW
	Derate above 25°C	5.0	2.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	83.3		°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	200	357	°C/W

\*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

# NPN Darlington Transistor

(continued)

## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	12		V
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 25 \text{ V}, I_B = 0$		1.0	$\mu\text{A}$
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$		50	nA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 10 \text{ V}, I_C = 0$		50	nA

## ON CHARACTERISTICS

$h_{FE}$	DC Current Gain*	$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_C = 500 \text{ mA}, V_{CE} = 5.0 \text{ V}$	10,000 20,000 14,000	100,000 200,000 140,000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 0.5 \text{ mA}$		1.2 1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 500 \text{ mA}, I_B = 0.5 \text{ mA}$		2.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 50 \text{ mA}, V_{CE} = 5.0 \text{ V}$		1.75	V

## SMALL SIGNAL CHARACTERISTICS

$C_{obo}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0,$ $f = 1.0 \text{ MHz}$		7.0	pF
$C_{ibo}$	Input Capacitance	$V_{BE} = 1.0 \text{ V}, I_C = 0,$ $f = 1.0 \text{ MHz}$		15	pF

\*Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

2N6427 / MMBT6427