

## 2N6426



### NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at 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>CB0</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
		2N6426	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	625	mW
		5.0	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	°C/W

# NPN Darlington Transistor

(continued)

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## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	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
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$		50	nA
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 25 \text{ V}, I_B = 0$		1.0	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 10 \text{ V}, I_C = 0$		50	nA

### ON CHARACTERISTICS\*

$h_{FE}$	DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 5.0 \text{ V}, I_C = 100 \text{ mA}$ $V_{CE} = 5.0 \text{ V}, I_C = 500 \text{ mA}$	20,000 30,000 20,000	200,000 300,000 200,000	
$V_{CE(sat)}$	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
$V_{BE(sat)}$	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

$C_{ob}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		7.0	pF
$C_{ib}$	Input Capacitance	$V_{EB} = 1.0 \text{ V}, I_C = 0, f = 1.0 \text{ MHz}$		15	pF
$h_{fe}$	Small-Signal Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $f = 1.0 \text{ kHz}$	20,000		
$h_{ie}$	Input Impedance	$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V},$	100	2,000	k $\Omega$
$h_{oe}$	Output Admittance	$f = 1.0 \text{ kHz}$		1,000	$\mu\text{mho}$
NF	Noise Figure	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $R_S = 100 \text{ k}\Omega,$ $f = 10 \text{ kHz to } 15.7 \text{ kHz}$		10	dB

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