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## 2N6426

### Silicon NPN Transistor Darlington General Purpose Amplifier TO-92 Type Package

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO}$ .....	40V
Collector–Base Voltage, $V_{CBO}$ .....	40V
Emitter–Base Voltage, $V_{EBO}$ .....	12V
Continuous Collector Current, $I_C$ .....	500mA
Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	625W
Derate Above $25^\circ\text{C}$ .....	5.0mW/ $^\circ\text{C}$
Total Device Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	1.5W
Derate Above $25^\circ\text{C}$ .....	12mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient, $R_{thJA}$ .....	$200^\circ\text{C/W}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	$83.3^\circ\text{C/W}$

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$ , $V_{BE} = 0$ , Note 1	40	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$ , $I_E = 0$	40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$ , $I_C = 0$	12	–	–	V
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 25\text{V}$ , $I_B = 0$	–	–	1.0	$\mu\text{A}$
	$I_{CBO}$	$V_{CB} = 30\text{V}$ , $I_E = 0$	–	–	50	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{CB} = 30\text{V}$ , $I_E = 0$	–	–	50	nA

Note 1. Pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, \text{Note 1}$	20,000	-	200,000	-
		$I_C = 100\text{mA}, V_{CE} = 5\text{V}, \text{Note 1}$	30,000	-	300,000	-
		$I_C = 500\text{mA}, V_{CE} = 5\text{V}, \text{Note 1}$	20,000	-	200,000	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 0.5\text{mA}$	-	0.71	1.2	V
		$I_C = 500\text{mA}, I_B = 0.5\text{mA}$	-	0.9	1.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 0.5\text{mA}$	-	1.52	2.0	V
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C = 50\text{mA}, V_{CE} = 5\text{V}$	-	1.24	1.75	V
<b>Small-Signal Characteristics</b>						
Output Capacitance	$C_{obo}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{ MHz}$	-	5.4	7.0	$\mu\text{F}$
Input Capacitance	$C_{ibo}$	$V_{EB} 1.0\text{V}, I_C = 0, f = 1.0\text{ MHz}$	-	10	15	$\mu\text{F}$
Input Impedance	$h_{ie}$	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 1\text{ kHz}$	100	-	2000	$\text{k}\Omega$
Small-Signal Current Gain	$h_{fe}$	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 1\text{ kHz}$	20,000	-	-	-
Current Gain - High Frequency	$ h_{fe} $	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 100\text{ kHz}$	1.5	2.4	-	-
Output Admittance	$h_{oe}$	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 1\text{ kHz}$	-	-	1000	$\mu\text{hos}$
Noise Figure	NF	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 1\text{ kHz}, R_S = 100\text{ k}\Omega$	-	3.0	10	dB

Note 1. Pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

