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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°C	5.0mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	1.5W
Derate Above 25°C	12mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° 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
OFF Characteristics						
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	μA
	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
ON Characteristics						
DC Current Gain	h_{FE}	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$, Note 1	20,000	–	200,000	–
		$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$, Note 1	30,000	–	300,000	–
		$I_C = 500\text{mA}$, $V_{CE} = 5\text{V}$, 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
Small–Signal Characteristics						
Output Capacitance	C_{obo}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1.0\text{ MHz}$	–	5.4	7.0	pF
Input Capacitance	C_{ibo}	$V_{EB} 1.0\text{V}$, $I_C = 0$, $f = 1.0\text{ MHz}$	–	10	15	pF
Input Impedance	h_{ie}	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$, $f = 1\text{ kHz}$	100	–	2000	k Ω
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	μhos
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 $\leq 2\%$.

