



NES

NEW ENGLAND SEMICONDUCTOR

2N5428
2N5430

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) $I_C = 50 \text{ mAdc}$, $I_B = 0$	$V_{CE(sus)}$	80 100		Vdc
Collector Cutoff Current $V_{CE} = 75 \text{ Vdc}$, $I_B = 0$	I_{CEO}		100 100	μAdc
Collector Cutoff Current $V_{CE} = 75 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$	I_{CEX}		10 10	μAdc
$V_{CE} = 90 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$			1.0 1.0	mAdc
$V_{CE} = 75 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 150^\circ\text{C}$				
$V_{CE} = 90 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 150^\circ\text{C}$				
Collector Cutoff Current $V_{CB} = \text{Rated } V_{CB}$, $I_E = 0$	I_{CBO}		10	μAdc
Emitter Cutoff Current $V_{BE} = 6.0 \text{ Vdc}$, $I_C = 0$	I_{EBO}		100	μAdc
ON CHARACTERISTICS (1)				
DC Current Gain $I_C = 500 \text{ mAdc}$, $V_{CE} = 2.0 \text{ Vdc}$	h_{FE}	60 60 40	240	-
$I_C = 2.0 \text{ Adc}$, $V_{CE} = 2.0 \text{ Vdc}$				
$I_C = 5.0 \text{ Adc}$, $V_{CE} = 2.0 \text{ Vdc}$				
Collector-Emitter Saturation Voltage $I_C = 2.0 \text{ Adc}$, $I_B = 0.2 \text{ Adc}$	$V_{CE(sat)}$		0.7 1.2	Vdc
$I_C = 7.0 \text{ Adc}$, $I_B = 0.7 \text{ Adc}$				
Base-Emitter Saturation Voltage $I_C = 2.0 \text{ Adc}$, $I_B = 0.2 \text{ Adc}$	$V_{BE(sat)}$		1.2 2.0	Vdc
$I_C = 7.0 \text{ Adc}$, $I_B = 0.7 \text{ Adc}$				
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product $I_C = 500 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 10 \text{ MHz}$	f_T	30		MHz
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$	C_{ob}		250	p^F
Input Capacitance $V_{BE} = 2.0 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$	C_{ib}		1000	p^F
SWITCHING CHARACTERISTICS				
Delay Time	$V_{CC} = 40 \text{ Vdc}$, $V_{EB(off)} = 3.0 \text{ Vdc}$	t_d	100	ns
Rise Time	$I_C = 2.0 \text{ Adc}$, $I_{B1} = 200 \text{ mAdc}$	t_r	100	ns
Storage Time	$V_{CC} = 40 \text{ Vdc}$, $I_C = 2.0 \text{ Adc}$	t_s	2.0	μs
Fall Time	$I_{B1} = I_{B2} = 200 \text{ mAdc}$	t_f	200	ns

(1) Pulse Test: Pulse Width $\approx 300\mu\text{s}$, Duty Cycle $\approx 2.0\%$.

FIGURE 2 – SWITCHING TIME TEST CIRCUIT

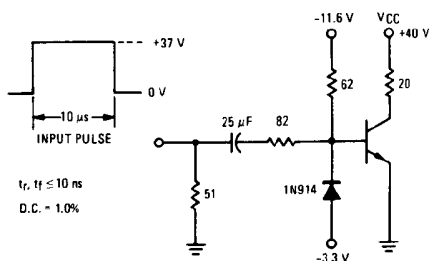
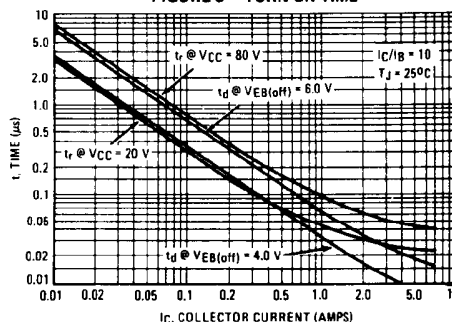


FIGURE 3 – TURN-ON TIME



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