

NTE2428 (NPN) & NTE2429 (PNP) Silicon Complementary Transistors General Purpose Switch

Description:

The NTE2428 and NTE2429 are silicon complementary transistors in a SOT-89 type surface mount package designed for use in thick and thin film circuits. Typical applications include telephone and general industrial.

Absolute Maximum Ratings:

Collector-Base Voltage (Open Emitter), V_{CBO}	90V
Collector-Emitter Voltage, V_{CER}	80V
Emitter-Base Voltage (Open Collector), V_{EBO}	5V
DC Collector Current, I_C	1A
DC Base Current, I_B	100mA
Total Power Dissipation ($T_A \leq +25^\circ\text{C}$, Note 1), P_{tot}	1W
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1), R_{thJA}	125K/W
Thermal Resistance, Junction-to-Tab, R_{thJTAB}	10K/W

Note 1. Device mounted on a ceramic substrate; area = 2.5cm^2 , thickness = 0.7mm.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 60\text{V}, I_E = 0$	—	—	100	nA
		$V_{CB} = 60\text{V}, I_E = 0, T_J = +150^\circ\text{C}$	—	—	50	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	80	—	—	V
	$V_{(BR)CES}$	$I_C = 10\mu\text{A}, V_{BE} = 0$	90	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	—	—	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$, Note 2	—	—	250	mV
		$I_C = 500\text{mA}, I_B = 50\text{mA}$, Note 2	—	—	500	mV
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$, Note 2	—	—	1.0	V
		$I_C = 500\text{mA}, I_B = 50\text{mA}$, Note 2	—	—	1.2	V

Note 2. Measured under pulsed conditions.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 100\mu\text{A}$, Note 2	30	—	—	
		$V_{CE} = 5\text{V}$, $I_C = 100\text{mA}$, Note 2	100	—	300	
		$V_{CE} = 5\text{V}$, $I_C = 500\text{mA}$, Note 2	50	—	—	
Transition Frequency	f_T	$V_{CE} = 10\text{V}$, $I_C = 50\text{mA}$, $f = 35\text{MHz}$	100	—	—	MHz
Collector Capacitance NTE2428	C_c	$V_{CB} = 10\text{V}$, $I_E = I_c = 0$, $f = 1\text{MHz}$	—	—	12	pF
NTE2429			—	—	20	pF
Emitter Capacitance NTE2428	C_e	$V_{EB} = 500\text{mV}$, $I_C = I_c = 0$, $f = 1\text{MHz}$	—	—	90	pF
NTE2429			—	—	120	pF
Turn-On Time NTE2428	t_{on}	$I_{Con} = 100\text{mA}$, $I_{Bon} = -I_{Boff} = 5\text{mA}$	—	—	250	ns
NTE2429			—	—	500	ns
Turn-Off Time NTE2428	t_{off}		—	—	1000	ns
NTE2429			—	—	650	ns

Note 2. Measured under pulsed conditions.

