NTE ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE154
Silicon NPN Transistor
High Voltage Video Output

Description:

The NTE154 is a silicon NPN transistor in a TO39 type package designed for use as a video output to drive a color CRT.

Features:

- High Voltage: V_{CEO} = 300V Min @ I_C = 5mA
- Low Capacitance: C_{ob} = 3pF Max @ V_{CB} = 20V
- High Frequency: f_t = 50MHz Min @ I_C = 15mA
- High Power Dissipation: P_D = 7W @ T_C = +25°C

Absolute Maximum Ratings: (Note 1)

Collector to Base Voltage, V_{CBO} 300V
Collector to Emitter Voltage (Note 2), V_{CEO} 300V
Emitter to Base Voltage, V_{EBO} 7V
Total Power Dissipation (Note 3, Note 4), P_D
T_C = +25°C 7W
T_A = +25°C 1W
Operating Junction Temperature, T_{opr} . . . . . +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Lead Temperature (During Soldering, 60sec), T_L . . . . . +300°C

Note 1. These ratings are limiting values above which the serviceability of this device may be impaired.
Note 2. This rating refers to a high current point where collector to emitter voltage is lowest.
Note 3. These ratings are steady state limits.
Note 4. These ratings give a maximum junction temperature of +200°C and junction to case thermal resistance of +25°C/W (derating factor of 40mW/°C); junction to ambient thermal resistance of +175°C/W (derating factor of 5.71mW/°C).

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100µA, I_E = 0	300	–	–	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100µA, I_C = 0	7	–	–	V
Collector Cutoff Current	I_{CBO}	I_E = 0, V_{CB} = 200V	–	1.0	100	nA
		I_E = 0, V_{CB} = 200V, T_A = +125°C	–	0.2	5.0	µA
Emitter Cutoff Current	I_{EBO}	I_C = 0, V_{EB} = 6V	–	1.0	100	nA
DC Current Gain	h_{FE}	I_C = 1mA, V_{CE} = 20V	20	50	–	
		I_C = 10mA, V_{CE} = 20V, Note 5	40	100	–	
		I_C = 30mA, V_{CE} = 20V, Note 5	40	100	–	
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 5mA, I_B = 0, Note 2, Note 5	300	–	–	V
Base Emitter Saturating Voltage	$V_{BE(sat)}$	I_C = 20mA, I_B = 2mA, Note 5	–	0.74	0.85	V
Collector Emitter Saturating Voltage	$V_{CE(sat)}$	I_C = 20mA, I_B = 2mA, Note 5	–	0.35	1.0	V
High Frequency Current Gain	h_{fe}	I_C = 15mA, V_{CE} = 150V, f = 20MHz	2.5	4.0	–	
		I_C = 3mA, V_{CE} = 270V, f = 20MHz	2.0	2.5	–	
		I_C = 30mA, V_{CE} = 30V, f = 20MHz, R_L = 9kΩ	2.0	4.0	–	
Collector Base Capacitance	C_{cb}	I_E = 0, V_{CB} = 20V	–	2.5	3.0	pF
Emitter Base Capacitance	C_{eb}	I_C = 0, V_{EB} = 500mV	–	45	70	pF

Note 2. This rating refers to a high current point where collector to emitter voltage is lowest.
Note 5. Pulse Conditions: Length = 300µs, Duty Cycle = 1%.