

SILICON TRANSISTORS

2SC1653, 2SC1654

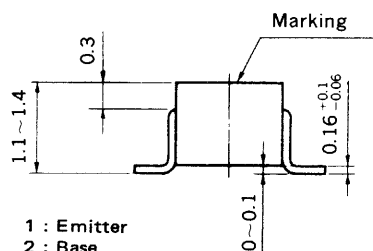
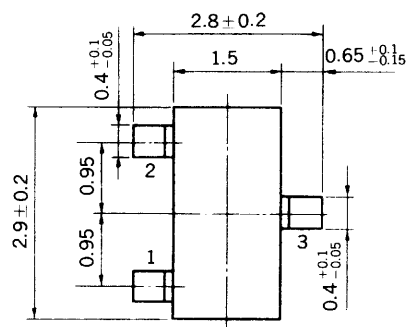
DISPLAY TUBE DRIVE, HIGH VOLTAGE SWITCHING

NPN SILICON EPITAXIAL TRANSISTOR

MINI MOLD

PACKAGE DIMENSIONS

in millimeters



1 : Emitter
 2 : Base
 3 : Collector

FEATURES

- High Voltage V_{CEO} : 2SC1653 130 V, 2SC1654 160 V
- High DC Current Gain: $h_{FE} = 130$ TYP. ($V_{CE} = 3.0$ V, $I_C = 15$ mA)

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ($T_a = 25^\circ\text{C}$)		2SC1653	2SC1654
Collector to Base Voltage	V_{CBO}	150	180
Collector to Emitter Voltage	V_{CEO}	130	160
Emitter to Base Voltage	V_{EBO}	5.0	
Collector Current (DC)	I_C	50	
Maximum Power Dissipation			
Total Power Dissipation at 25°C Ambient Temperature	P_T	150	
Maximum Temperatures			
Junction Temperature	T_j	125	
Storage Temperature Range	T_{stg}	-55 to +125	

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB} = 130$ V, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			0.1	μA	$V_{EB} = 5.0$ V, $I_C = 0$
DC Current Gain	h_{FE1}	70	180			$V_{CE} = 3.0$ V, $I_C = 1.0$ mA
	h_{FE2}	90	200	400		$V_{CE} = 3.0$ V, $I_C = 15$ mA*
Collector Saturation Voltage	$V_{CE(sat)}$		0.1	0.3	V	$I_C = 50$ mA, $I_B = 5.0$ mA
Base Saturation Voltage	$V_{BE(sat)}$		0.73	1.0	V	$I_C = 50$ mA, $I_B = 5.0$ mA
Gain Bandwidth Product	f_T		120		MHz	$V_{CE} = 10$ V, $I_E = -10$ mA
Output Capacitance	C_{ob}		2.3		pF	$V_{CB} = 10$ V, $I_E = 0$, $f = 1.0$ MHz

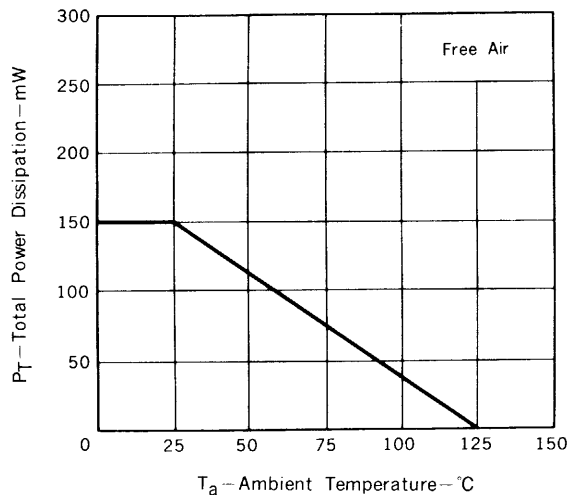
* Pulsed: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE2} Classification

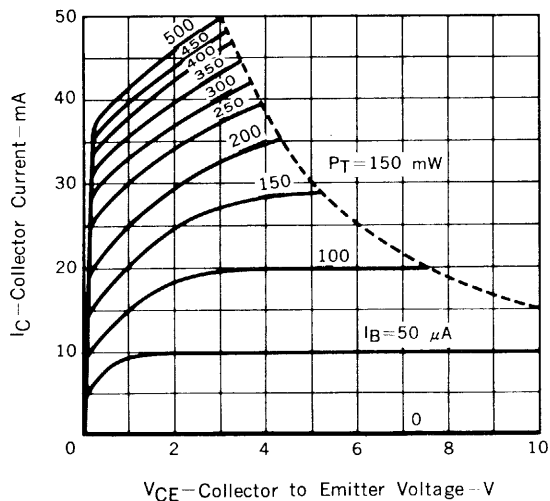
Marking	2SC1653	N2	N3	N4
	2SC1654	N5	N6	N7
h_{FE2}		90 to 180	135 to 270	200 to 400

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

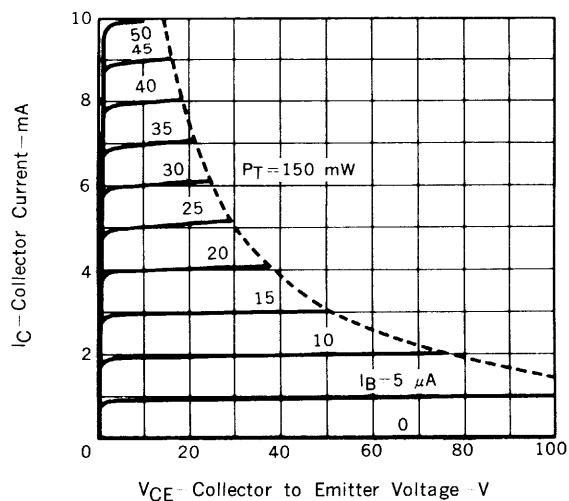
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



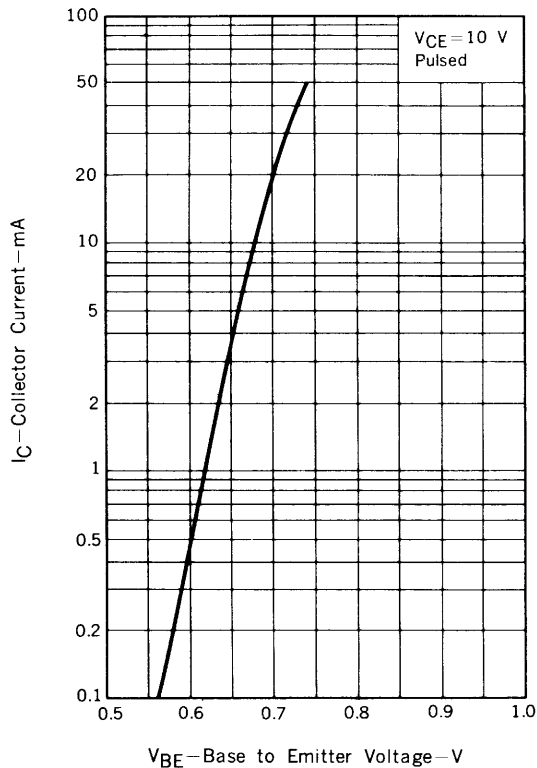
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



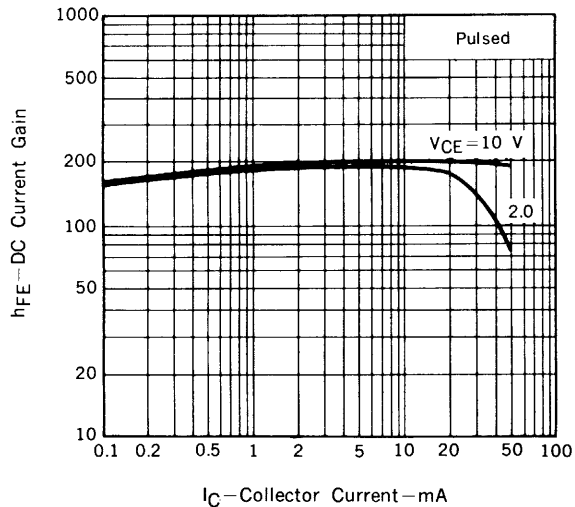
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



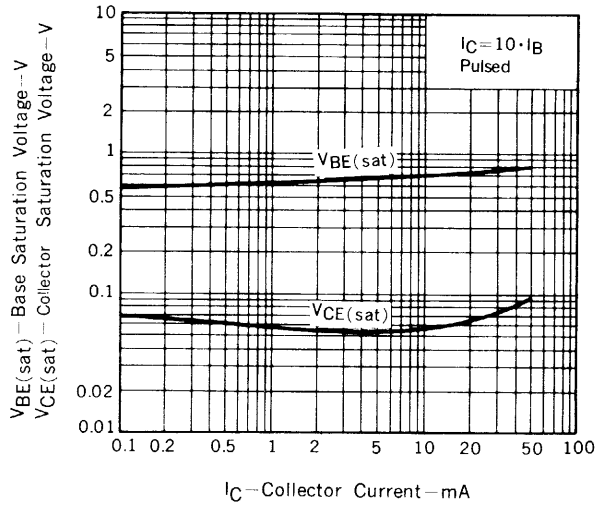
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



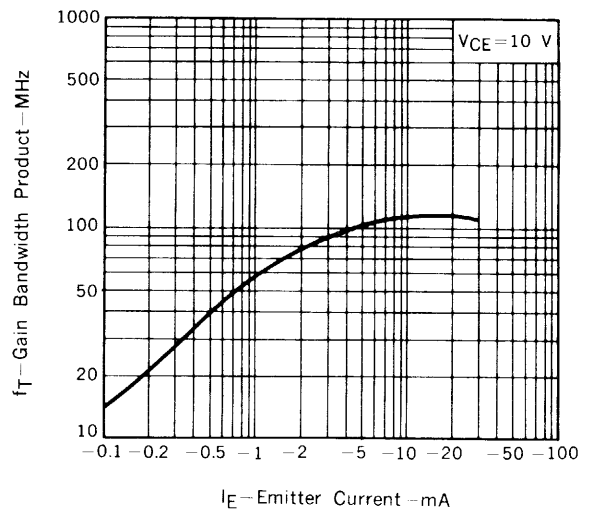
DC CURRENT GAIN vs. COLLECTOR CURRENT



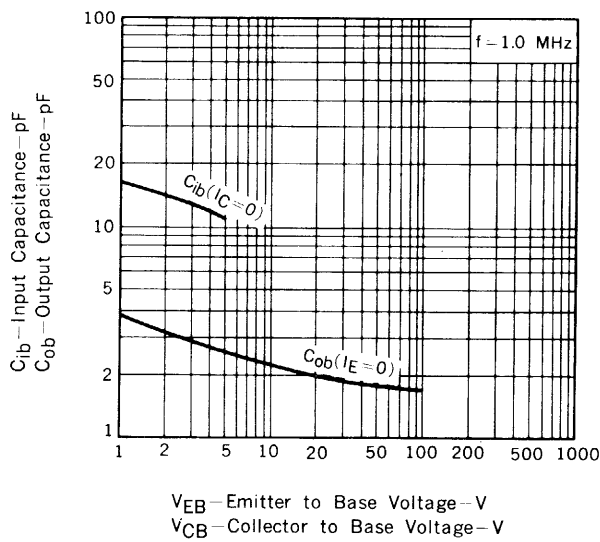
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



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