

SILICON TRANSISTORS

2SC1653, 2SC1654

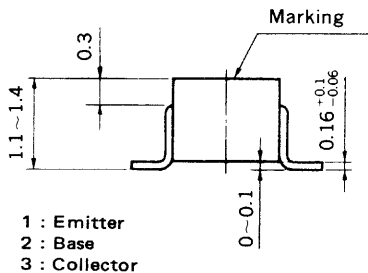
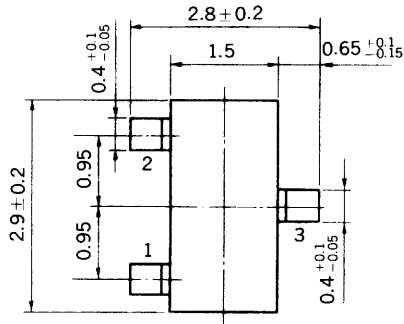
DISPLAY TUBE DRIVE, HIGH VOLTAGE SWITCHING

NPN SILICON EPITAXIAL TRANSISTOR

MINI MOLD

PACKAGE DIMENSIONS

in millimeters



1 : Emitter
2 : Base
3 : Collector

FEATURES

- High Voltage V_{CE0} : 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 V
Collector to Emitter Voltage	V_{CEO} 130	160 V
Emitter to Base Voltage	V_{EBO}	5.0 V
Collector Current (DC)	I_C	50 mA
Maximum Power Dissipation		
Total Power Dissipation at 25°C Ambient Temperature	P_T	150 mW
Maximum Temperatures		
Junction Temperature	T_j	125 $^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +125 $^\circ\text{C}$

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

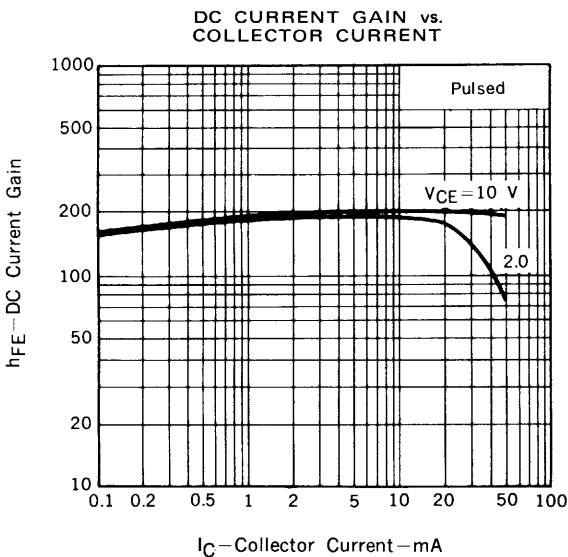
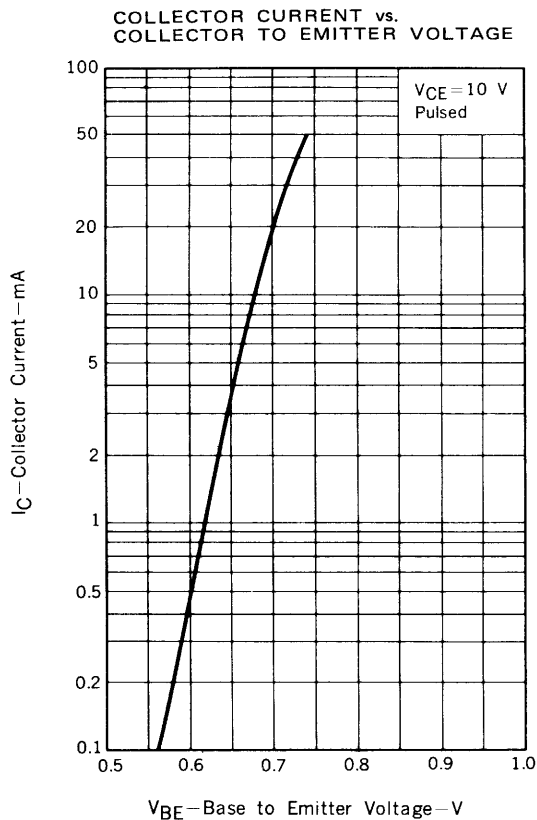
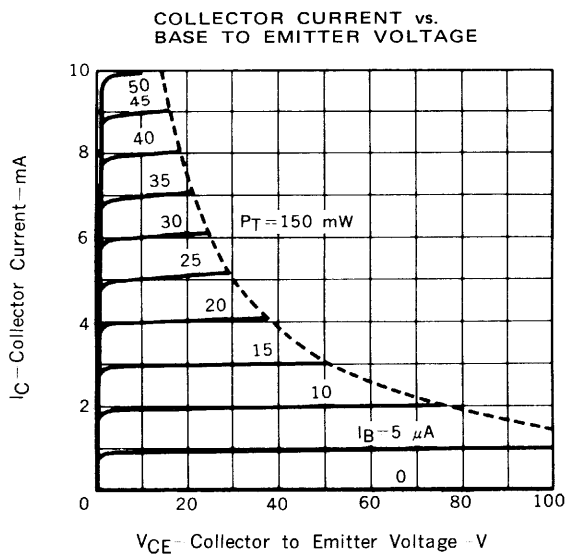
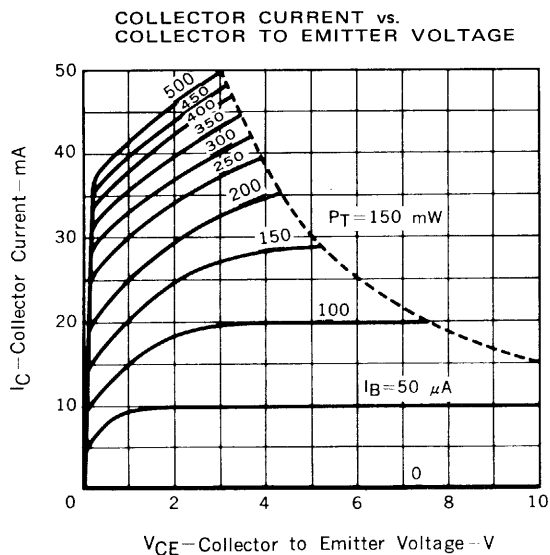
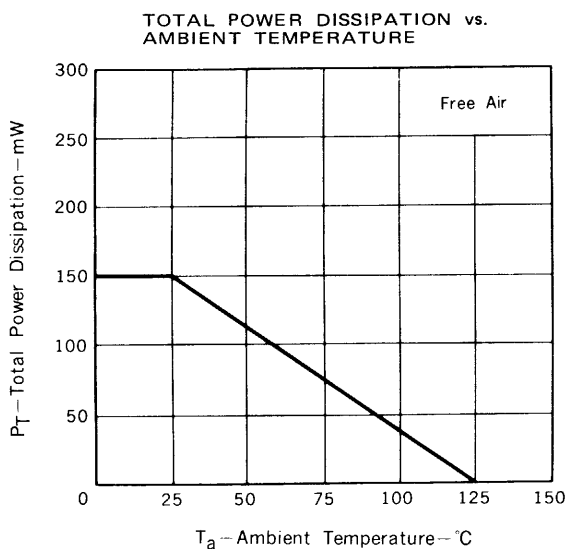
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB} = 130$ V, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			0.1	μA	$V_{EB} = 5.0$ V, $I_C = 0$
DC Current Gain	h_{FE1}	70	180			$V_{CE} = 3.0$ V, $I_C = 1.0$ mA
	h_{FE2}	90	200	400		$V_{CE} = 3.0$ V, $I_C = 15$ 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 $\leq 2\%$

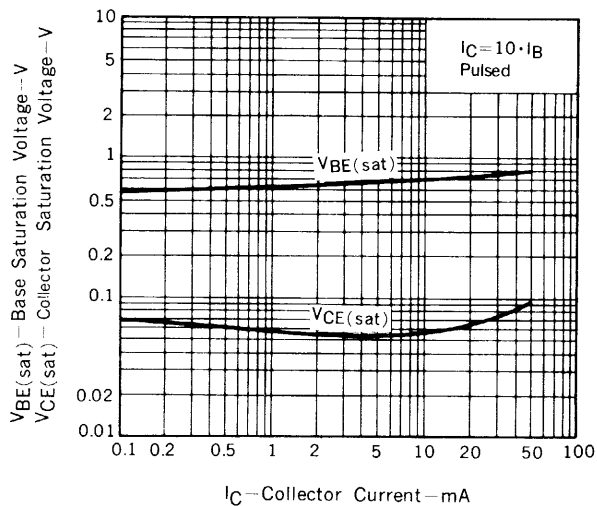
h_{FE2} Classification

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

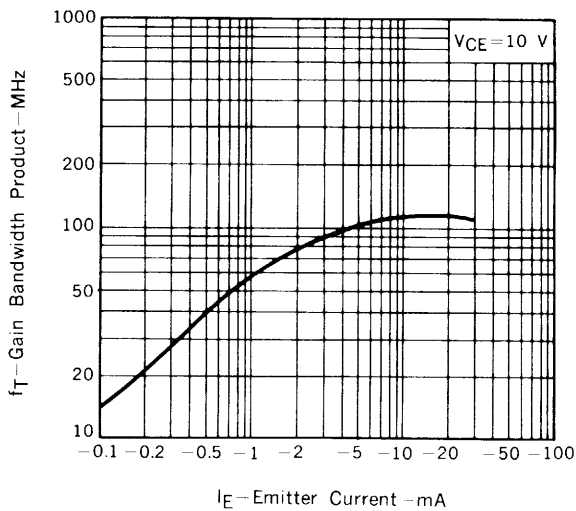
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



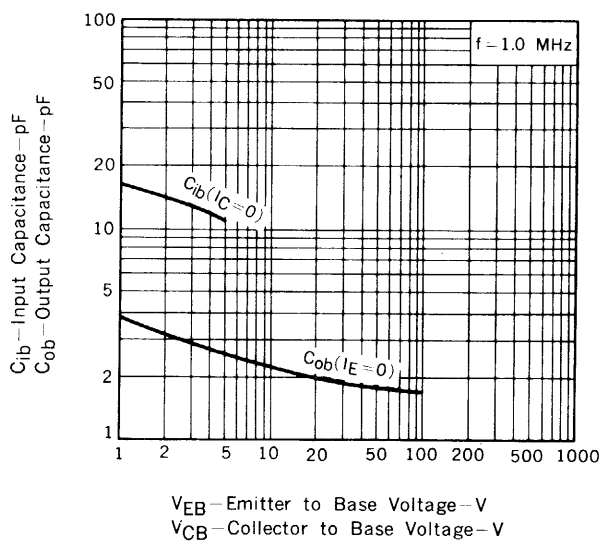
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



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