To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

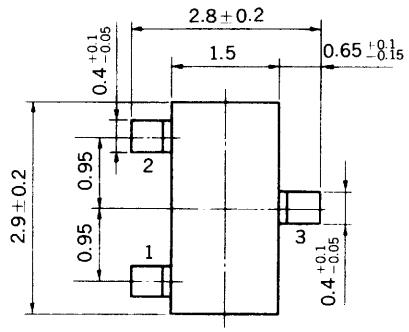
SILICON TRANSISTORS

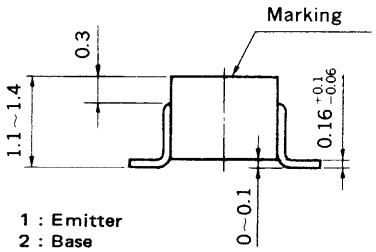
2SC1653,2SC1654

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 °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		°C
Storage Temperature Range	T_{stg}	−55 to +125		°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °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 ≦ 350 μs, Duty Cycle ≦ 2 %

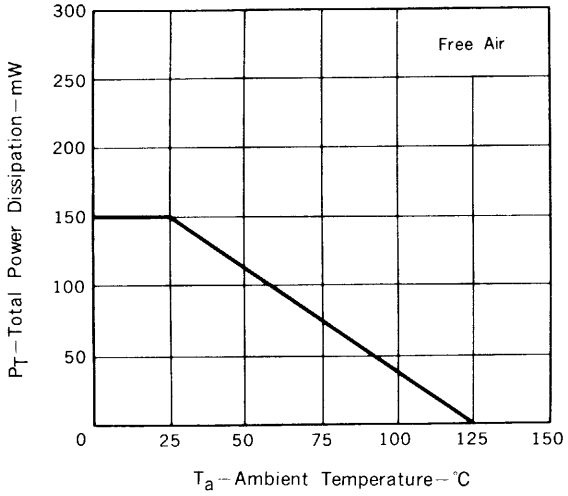
h_{FE2} Classification

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

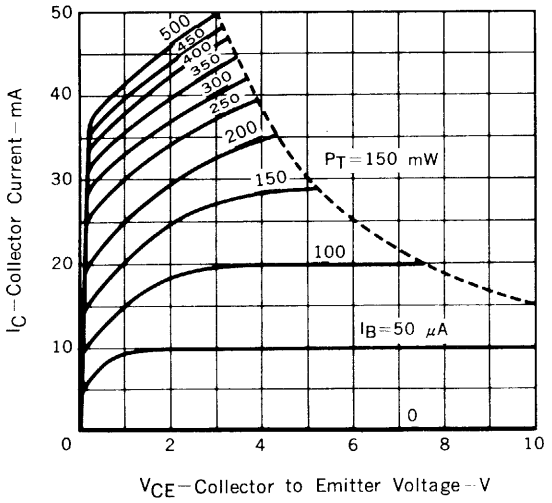
NEC Corporation

TYPICAL CHARACTERISTICS (T_a = 25 °C)

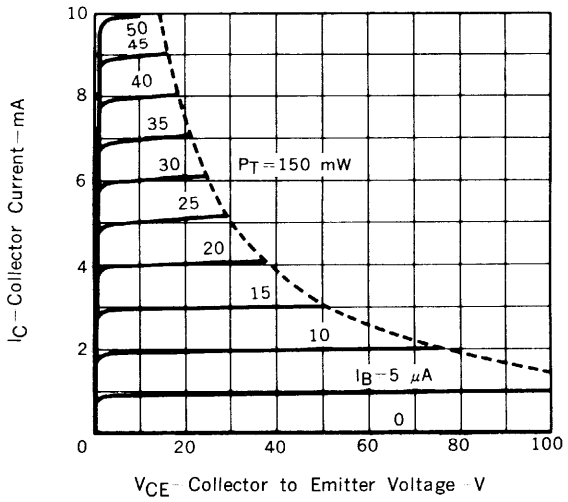
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



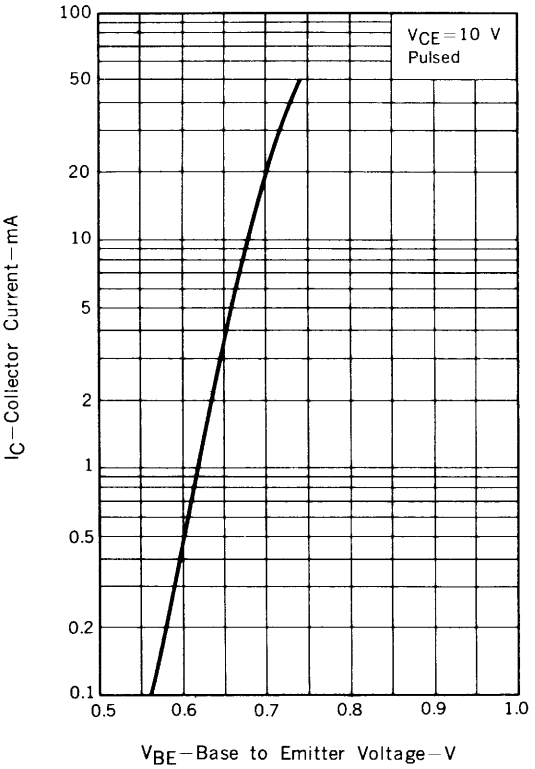
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



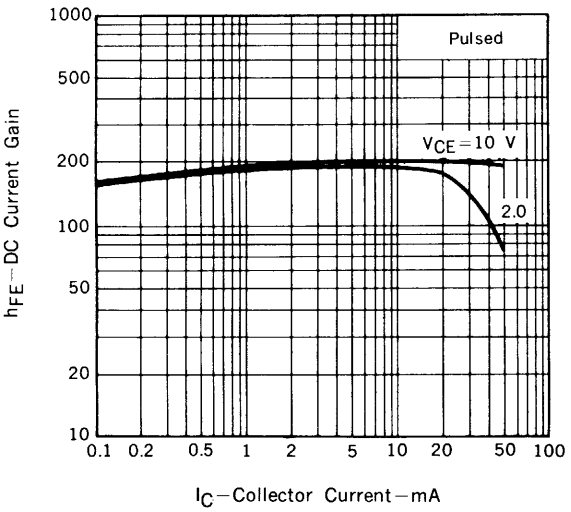
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



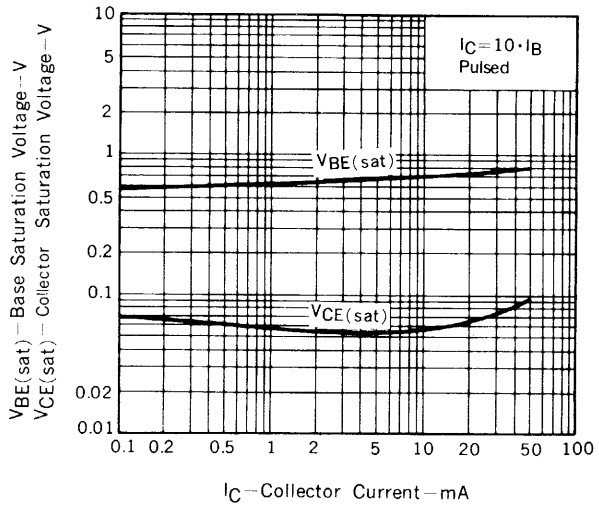
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



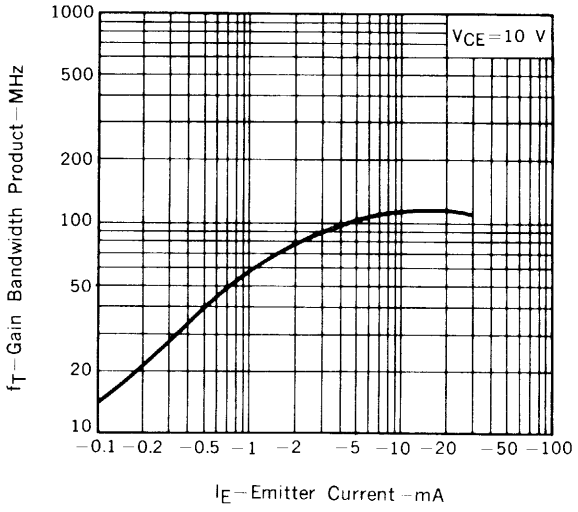
DC CURRENT GAIN vs.
COLLECTOR CURRENT



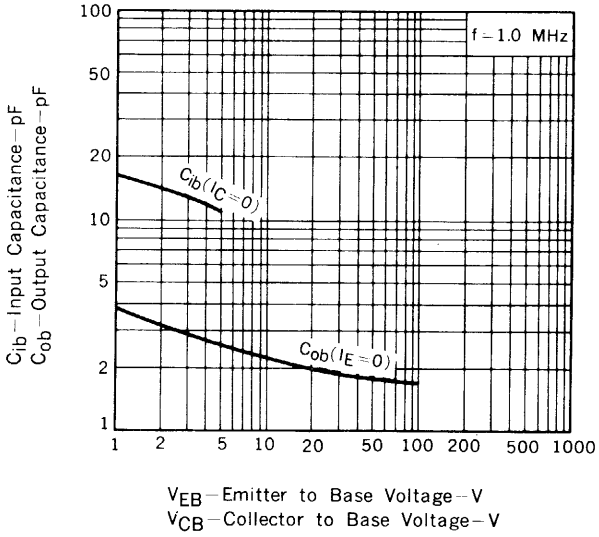
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



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