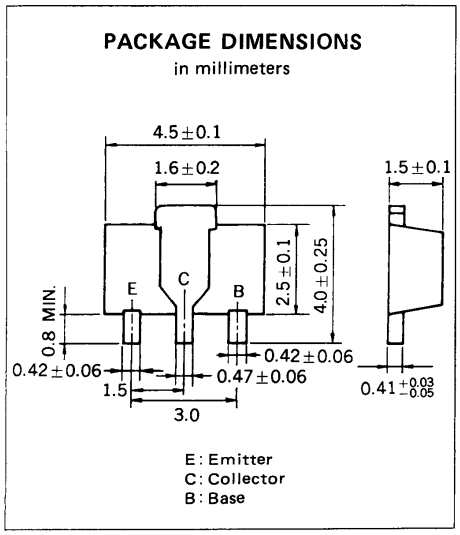
RENESAS

SILICON TRANSISTOR
2SC3617

NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

<R>

PACKAGE DIMENSIONS
in millimeters



FEATURES

- High h_{FE} h_{FE} = 800 to 3200

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Collector to Base Voltage	V_{CBO}	50	V
Collector to Emitter Voltage	V_{CEO}	50	V
Emitter to Base Voltage	V_{EBO}	15	V
Collector Current (DC)	$I_{C(DC)}$	300	mA
Collector Current (Pulse)*	$I_{C(pulse)}$	500	mA
Total Power Dissipation**	P_T	2.0	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

*PW ≤ 10 ms, Duty Cycle ≤ 50 %
**When mounted on ceramic substrate of 16 cm² x 0.7 mm

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

	CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
	Collector Cutoff Current	I_{CBO}			100	nA	V_{CB} = 50 V, I_E = 0
	Emitter Cutoff Current	I_{EBO}			100	nA	V_{EB} = 10 V, I_C = 0
<R>	DC Current Gain	h_{FE1}***	800	1500	3200		V_{CE} = 5.0 V, I_C = 100 mA
	DC Current Gain	h_{FE2}***	640				V_{CE} = 5.0 V, I_C = 300 mA
<R>	Collector Saturation Voltage	$V_{CE(sat)}$***		0.12	0.3	V	I_C = 100 mA, I_B = 1.0 mA
	Base Saturation Voltage	$V_{BE(sat)}$***		0.7	1.2	V	I_C = 100 mA, I_B = 1.0 mA
	Gain Bandwidth Product	f_T	150	220		MHz	V_{CE} = 5.0 V, I_E = −50 mA
	Output Capacitance	C_{ob}		8.0		pF	V_{CB} = 10 V, I_E = 0, f=1 MHz
<R>	Turn-on Time	t_{on}		0.15		μs	V_{CC} = 10 V, $V_{BE(off)}$ ≒ −2.7 V
<R>	Turn-off Time	t_{off}		1.1		μs	I_C = 200 mA, I_{B1} = −I_{B2} = 4.0 mA

***Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

h_{FE} Classification

MARKING	TM	TL	TK
h_{FE1}	800 to 1600	1200 to 2400	2000 to 3200

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The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

TYPICAL CHARACTERISTICS (T_A = 25°C)

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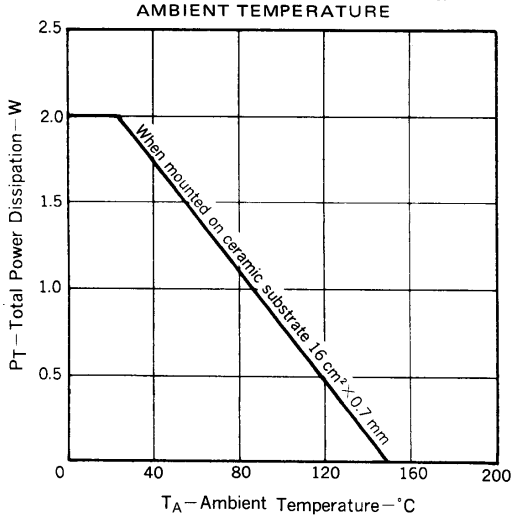
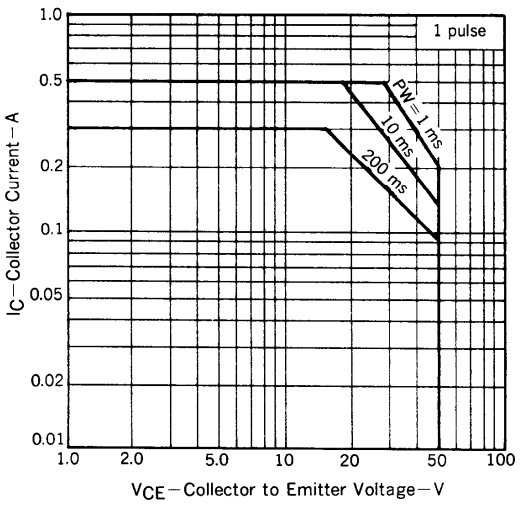
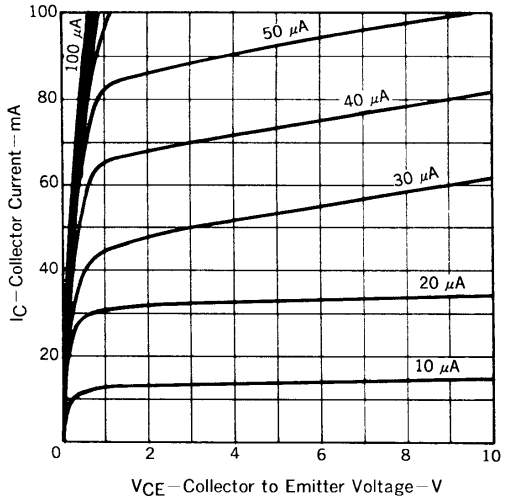
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



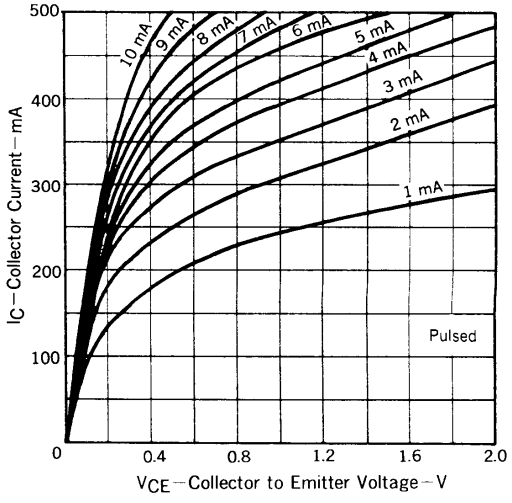
SAFE OPERATING AREA



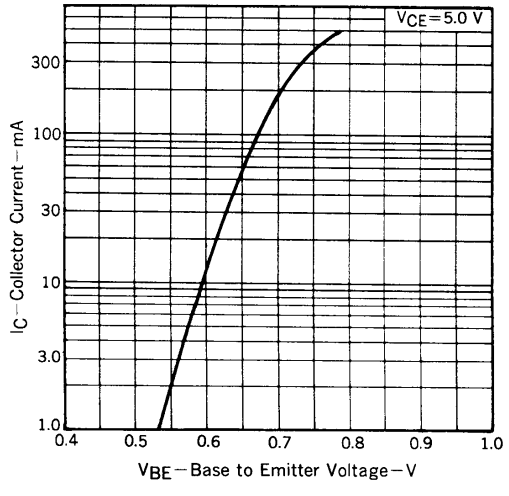
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



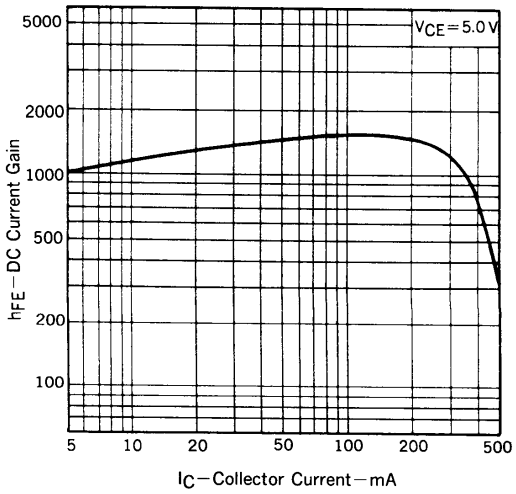
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



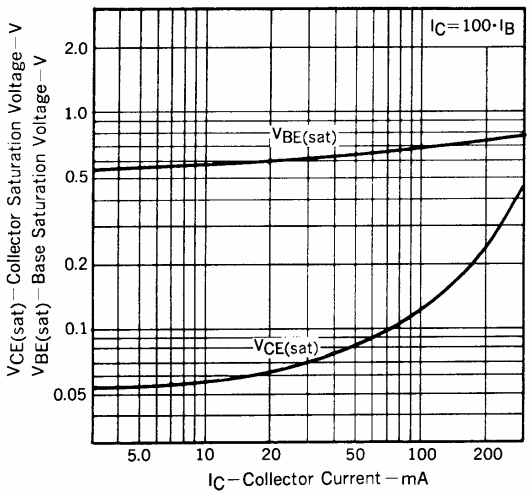
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



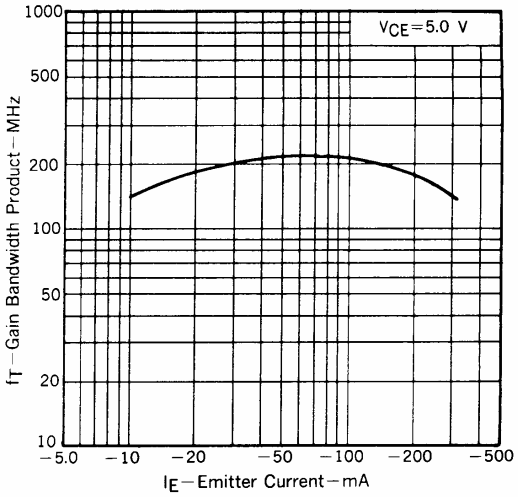
DC CURRENT GAIN vs. COLLECTOR CURRENT



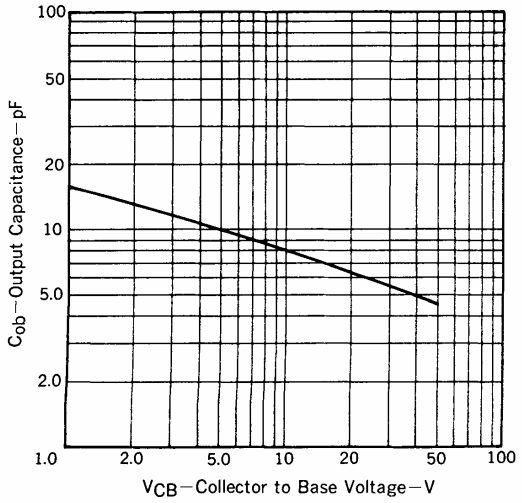
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



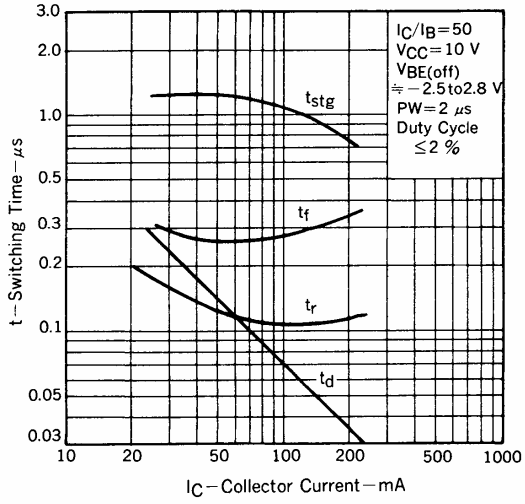
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



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$t_{on} = t_d + t_r$
$t_{off} = t_{stg} + t_f$

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