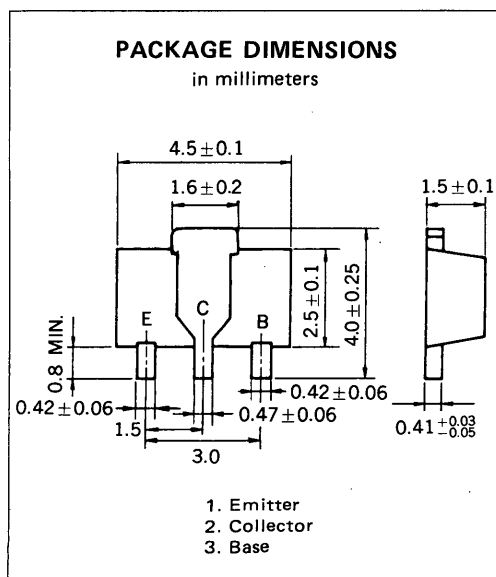


**NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD**

DESCRIPTION

2SC3617 is designed for audio frequency power amplifier and switching application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package
- High h_{FE} $h_{FE} = 800$ to 1600

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

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	300	mA
Collector Current (Pulse)*	I_C	500	mA

Maximum Power Dissipation

Total Power Dissipation at 25°C Ambient Temperature**	P_T	2.0	W
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Maximum Temperatures

Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

**When mounted on ceramic substrate of $16\text{ cm}^2 \times 0.7\text{ mm}$

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

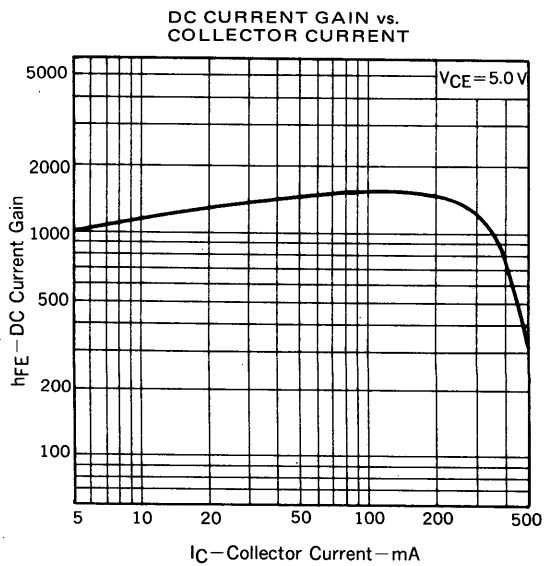
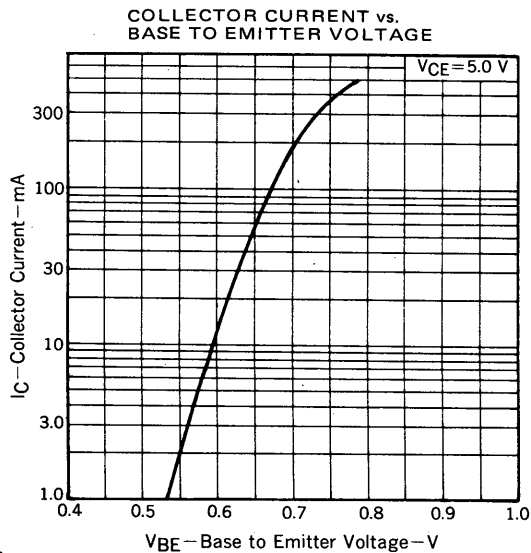
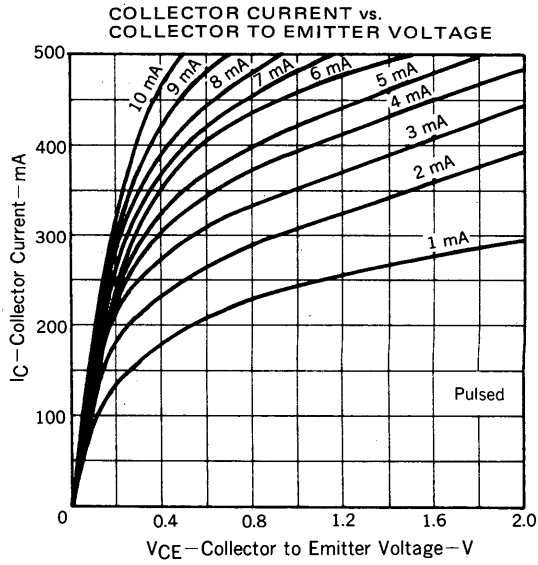
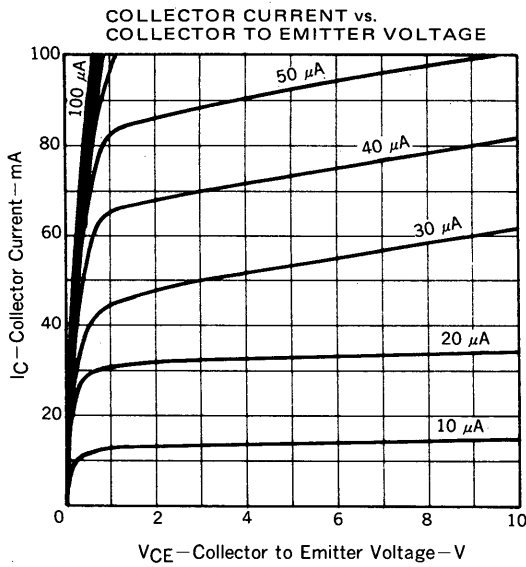
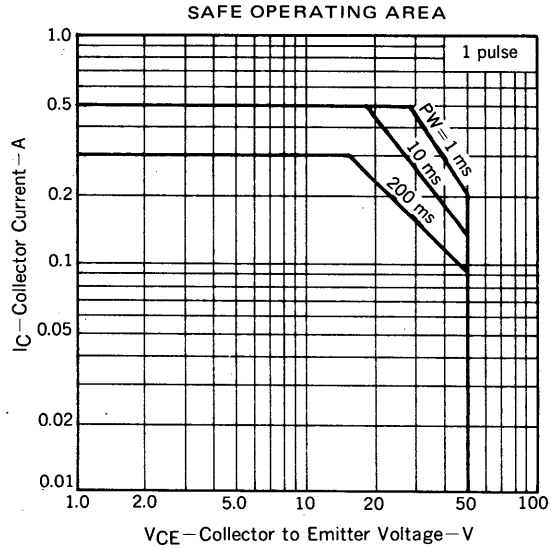
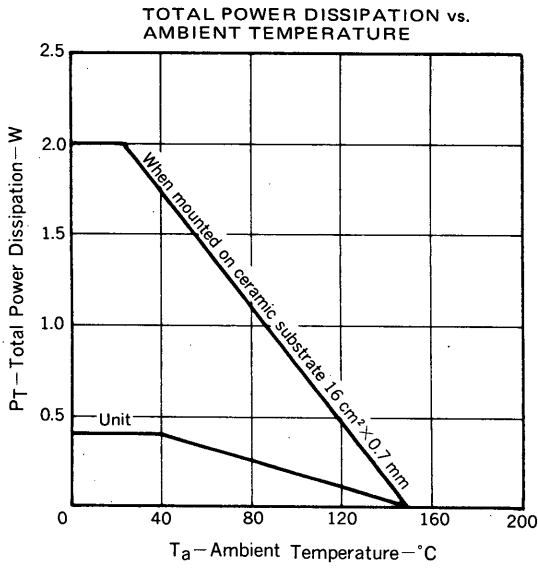
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 50\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 10\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^{***}	800		3200		$V_{CE} = 5.0\text{ V}, I_C = 100\text{ mA}$
DC Current Gain	h_{FE2}^{***}	640				$V_{CE} = 5.0\text{ V}, I_C = 300\text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^{***}$		0.12	0.13	V	$I_C = 100\text{ mA}, I_B = 1.0\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^{***}$		0.7	1.2	V	$I_C = 100\text{ mA}, I_B = 1.0\text{ mA}$
Gain Bandwidth Product	f_T	150	220		MHz	$V_{CE} = 5.0\text{ V}, I_E = -50\text{ mA}$
Output Capacitance	C_{ob}		8.0		pF	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$

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

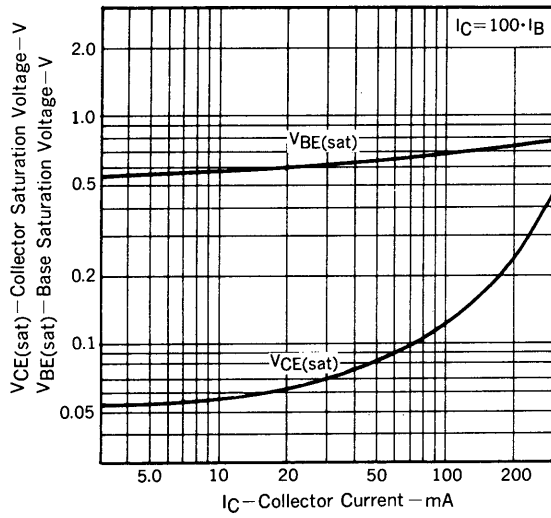
h_{FE} Classification

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

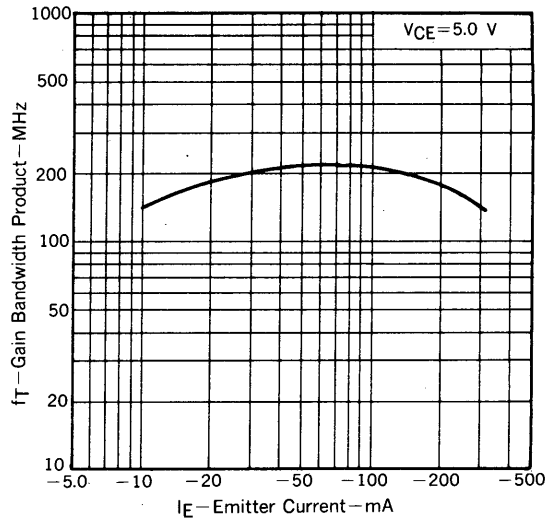
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



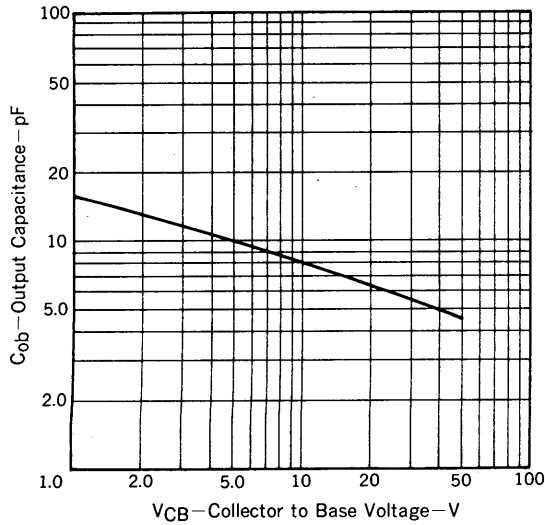
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



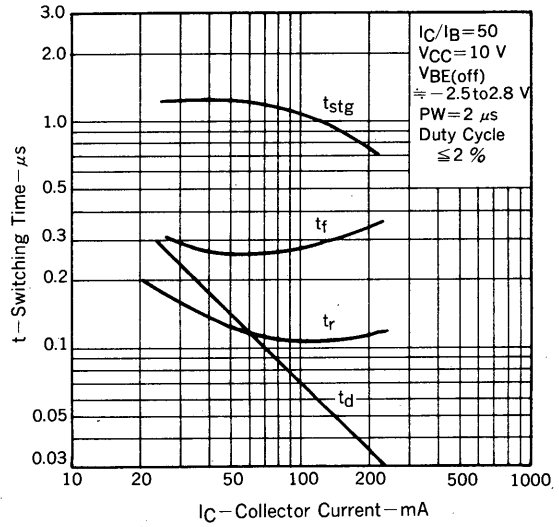
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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