

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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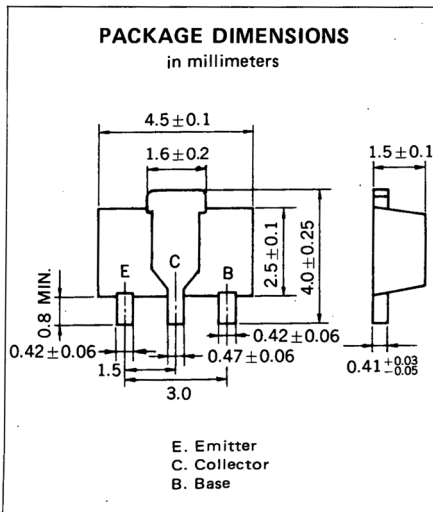
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Phase-out/Discontinued

NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

DESCRIPTION

2SC3618 is designed for audio frequency power amplifier and switching application, especially in Hybrid Integrated Circuits.



FEATURE

- High DC Current Gain $h_{FE} = 800$ to 3200

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	25	V
Collector to Emitter Voltage	V_{CEO}	25	V
Emitter to Base Voltage	V_{EBO}	15	V
Collector Current (DC)	$I_C(\text{DC})$	0.7	A
Collector Current (Pulse)*	$I_C(\text{Pulse})$	1.0	A
Total Power Dissipation**	P_T	2.0	W
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 $16\text{ cm}^2 \times 0.7$ mm

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 25\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 10\text{ V}, I_C = 0$
DC Current Gain	h_{FE1} ***	800		3200		$V_{CE} = 2.0\text{ V}, I_C = 300\text{ mA}$
DC Current Gain	h_{FE2} ***	640				$V_{CE} = 2.0\text{ V}, I_C = 500\text{ mA}$
Collector Saturation Voltage	$V_{CE(\text{sat})}$ ***		0.16	0.3	V	$I_C = 300\text{ mA}, I_B = 3.0\text{ mA}$
Base Saturation Voltage	$V_{BE(\text{sat})}$ ***		0.75	1.2	V	$I_C = 300\text{ mA}, I_B = 3.0\text{ mA}$
Gain Bandwidth Product	f_T	150	250		MHz	$V_{CE} = 5.0\text{ V}, I_E = -300\text{ mA}$
Output Capacitance	C_{ob}		10		pF	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$
Turn-on Time	t_{on}		0.13		μs	$V_{CC} = 10\text{ V}, V_{BE(\text{off})} = -2.7\text{ V}$
Turn-off Time	t_{off}		1.1		μs	$I_C = 200\text{ mA}, I_{B1} = -I_{B2} = 4\text{ mA}$

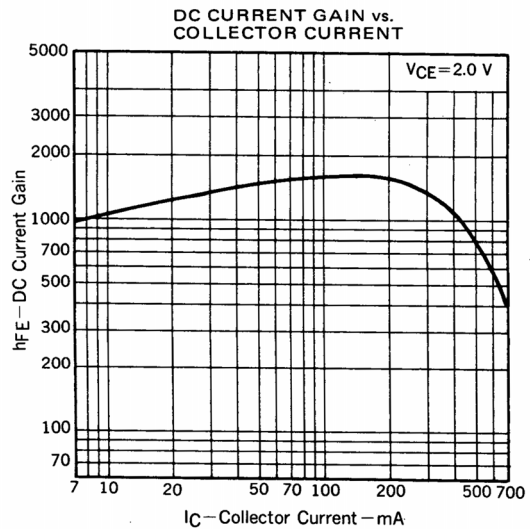
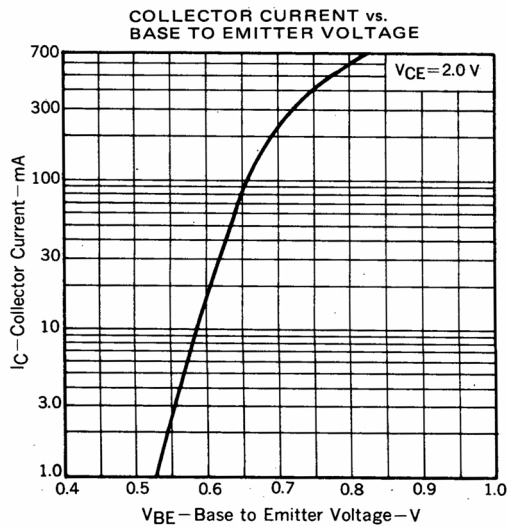
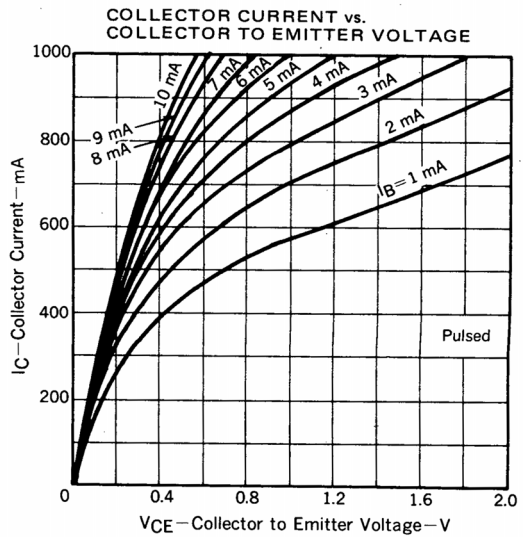
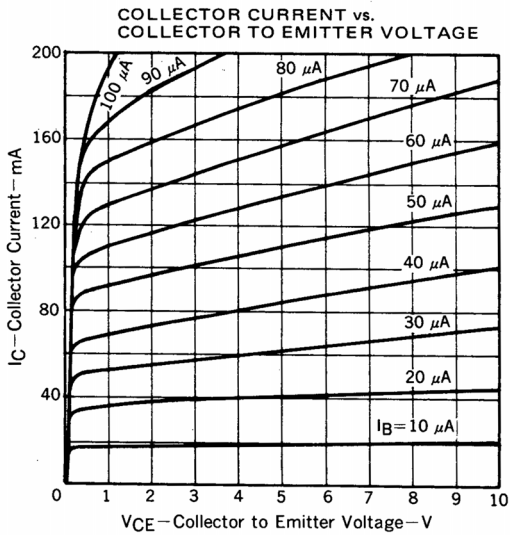
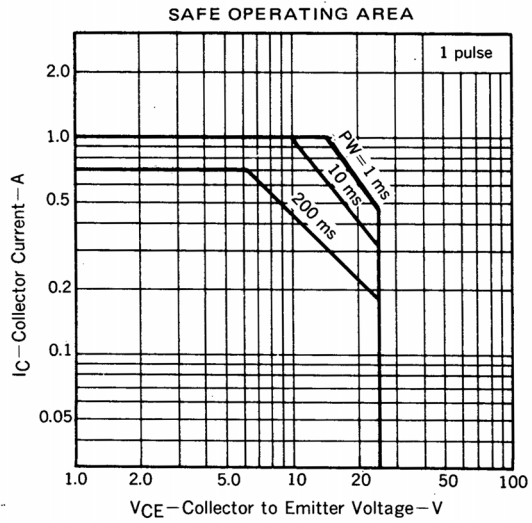
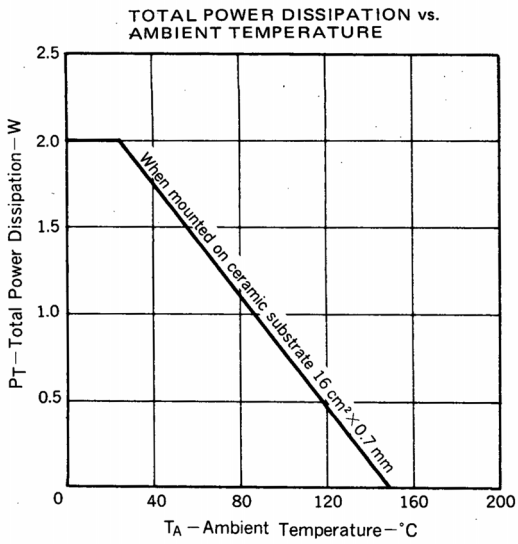
***Pulsed: $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

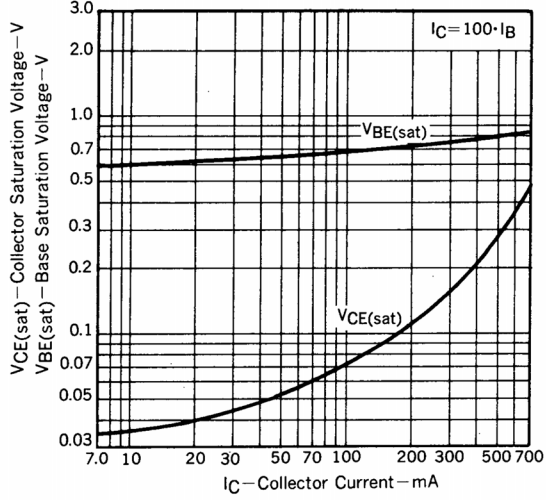
MARKING	UM	UL	UK
h_{FE1}	800 to 1600	1200 to 2400	2000 to 3200

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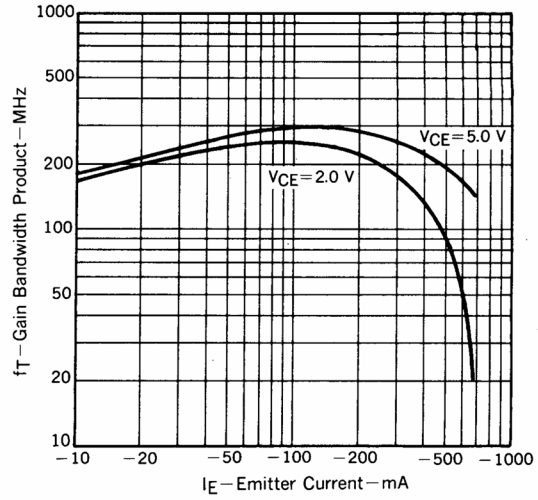
TYPICAL CHARACTERISTICS (T_A = 25°C)



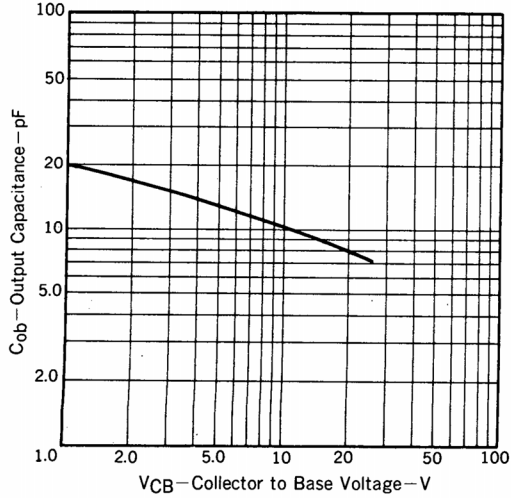
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



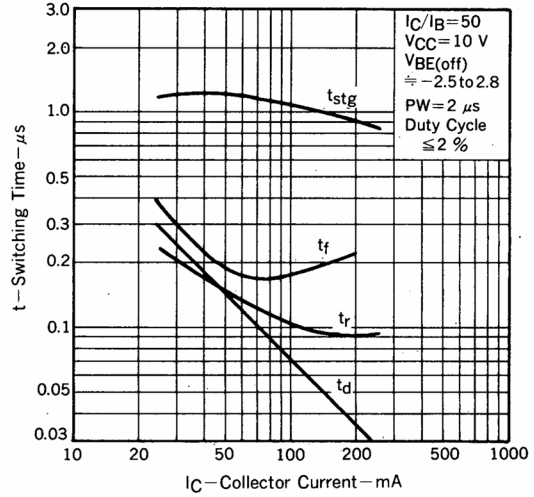
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



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