

# SILICON TRANSISTOR

## 2SC3632-Z

### NPN SILICON EPITAXIAL TRANSISTOR

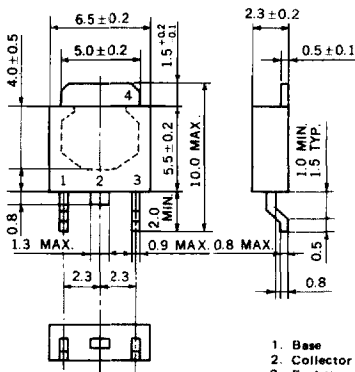
#### MP-3

#### DESCRIPTION

2SC3632-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

#### PACKAGE DIMENSIONS

in millimeters



#### FEATURES

- High Voltage  $V_{CE0} = 600$  V
- High Speed  $t_f < 0.5 \mu s$
- Complement to 2SA1413-Z

#### ABSOLUTE MAXIMUM RATINGS

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

Collector to Base Voltage	$V_{CBO}$	600	V
Collector to Emitter Voltage	$V_{CEO}$	600	V
Emitter to Base Voltage	$V_{EBO}$	7	V
Collector Current (DC)	$I_C$	1	A
Collector Current (Pulse)*	$I_C$	2	A

#### Maximum Power Dissipation

Total Power Dissipation at $25^\circ C$ Ambient Temperature**	$P_T$	2.0	W
--	-------	-----	---

#### Maximum Temperatures

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

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

\*\*When mounted on ceramic substrate of  $7.5 \text{ cm}^2 \times 0.7 \text{ mm}$

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**

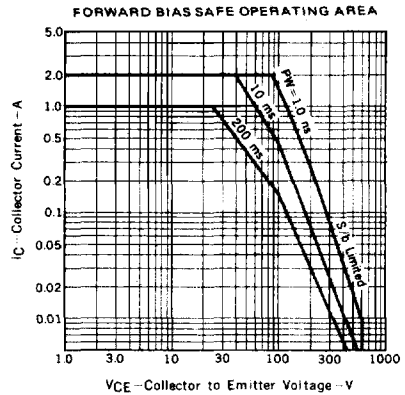
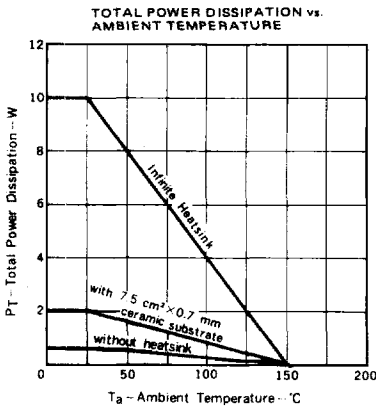
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I <sub>CBO</sub>			10	μA	V <sub>CB</sub> = 600 V, I <sub>E</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>			10	μA	V <sub>EB</sub> = 7.0 V, I <sub>C</sub> = 0
DC Current Gain	h <sub>FE1</sub> *	30	55	120		V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 100 mA
DC Current Gain	h <sub>FE2</sub> *	5	7			V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 500 mA
Collector Saturation Voltage	V <sub>CE(sat)</sub> *		0.35	1.0	V	I <sub>C</sub> = 400 mA, I <sub>B</sub> = 80 mA
Base Saturation Voltage	V <sub>BE(sat)</sub> *		0.9	1.2	V	I <sub>C</sub> = 400 mA, I <sub>B</sub> = 80 mA
Gain Bandwidth Product	f <sub>T</sub>		30		MHz	V <sub>CE</sub> = 5.0 V, I <sub>E</sub> = -50 mA
Output Capacitance	C <sub>ob</sub>		14		pF	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1.0 MHz
Turn-on Time	t <sub>on</sub>		0.1	0.5	μs	I <sub>C</sub> = 0.5 A, R <sub>L</sub> = 500 Ω
Storage Time	t <sub>stg</sub>		4.0	5.0	μs	I <sub>B1</sub> = -I <sub>B2</sub> = 0.1 A
Fall Time	t <sub>f</sub>		0.2	0.5	μs	V <sub>CC</sub> = 250 V

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

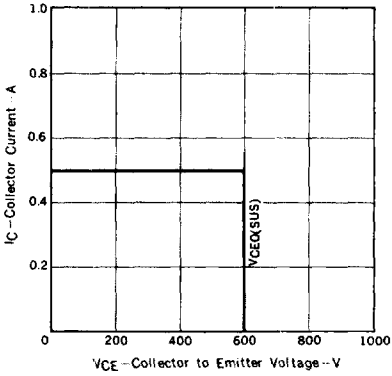
**h<sub>FE</sub> Classification**

MARKING	M	L	K
h <sub>FE1</sub>	30 to 60	40 to 80	60 to 120

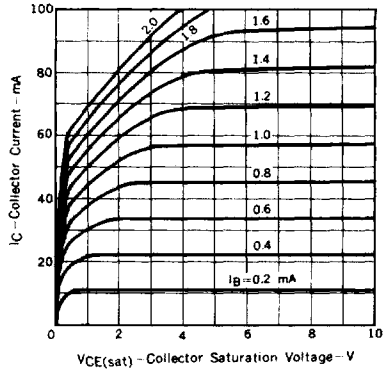
**TYPICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**



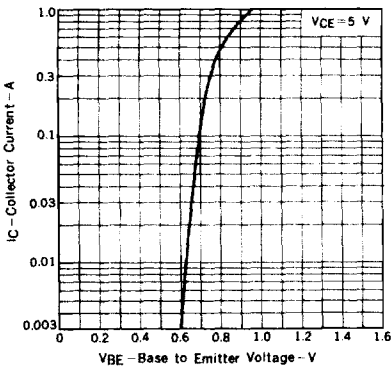
REVERSE BIAS SAFE OPERATING AREA



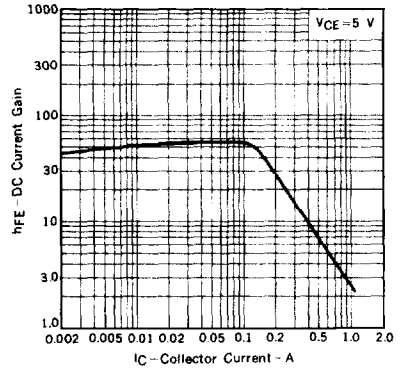
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



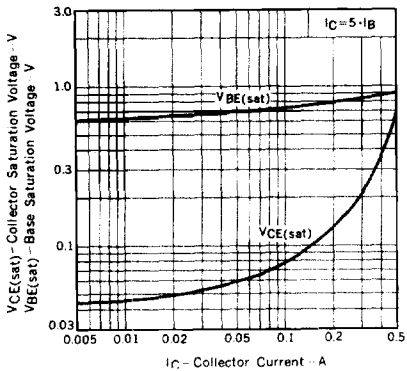
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



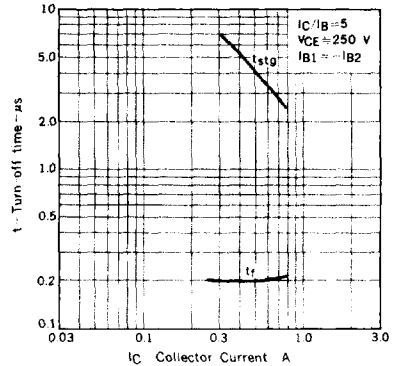
DC CURRENT GAIN vs. COLLECTOR CURRENT



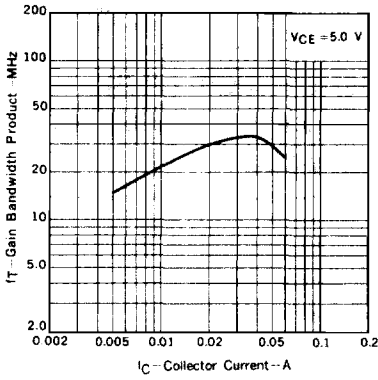
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



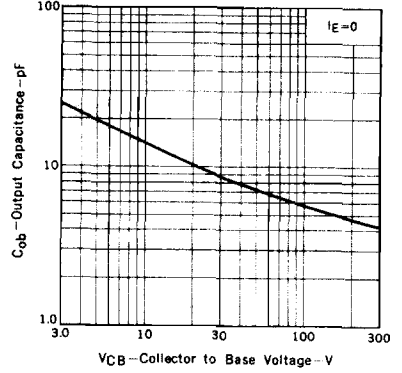
TURN OFF TIME vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



TRANSIENT THERMAL RESISTANCE

