

NPN SILICON TRIPLE DIFFUSED TRANSISTOR

DESCRIPTION

The 2SC3588-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High Voltage $V_{CE0} = 400$ V
- Complement to 2SA1400-Z

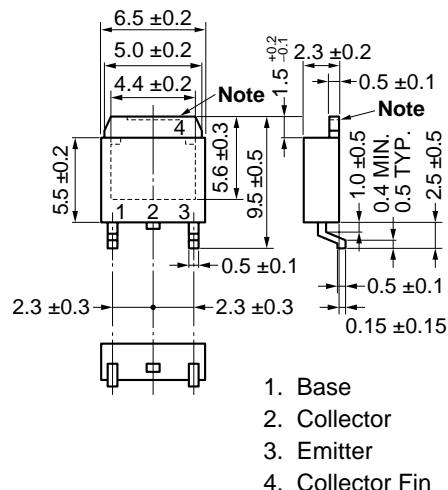
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	500	V
Collector to Emitter Voltage	V_{CEO}	400	V
Emitter to Base Voltage	V_{EBO}	7	V
Collector Current (DC)	$I_{C(DC)}$	0.5	A
Collector Current (pulse) ^{Note 1}	$I_{C(pulse)}$	1.0	A
Total Power Dissipation ($T_A = 25^\circ\text{C}$) ^{Note 2}	P_T	2.0	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

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

<R> PACKAGE DRAWING (Unit: mm)



Note The depth of notch at the top of the fin is from 0 to 0.2 mm.

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

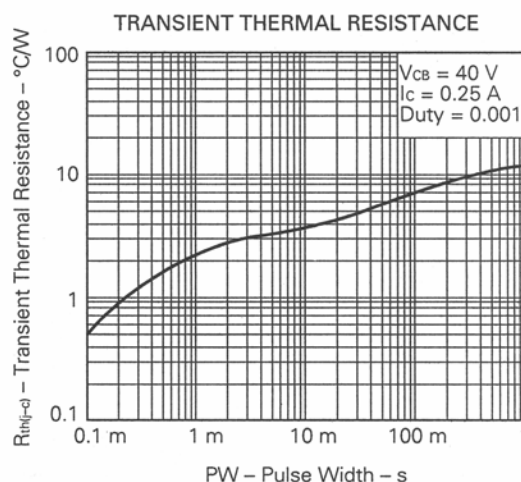
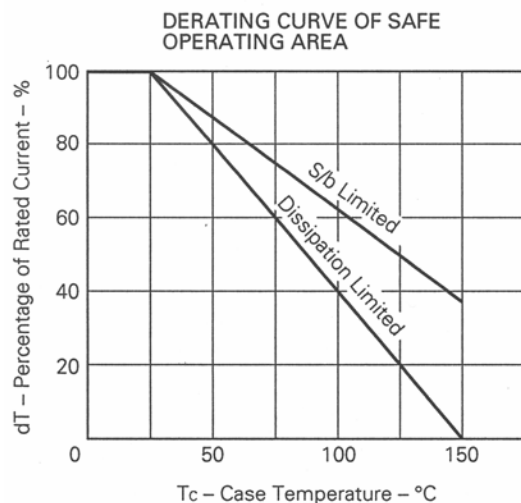
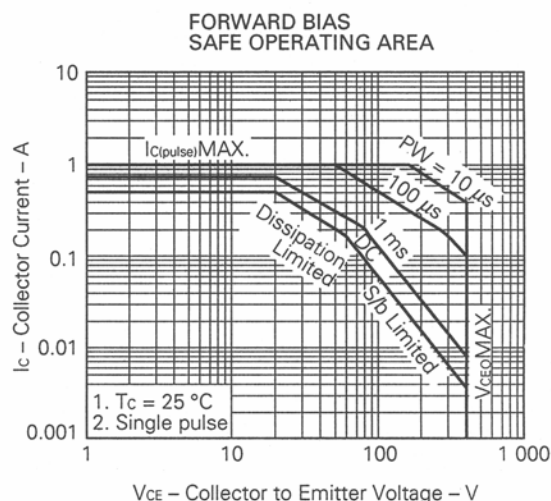
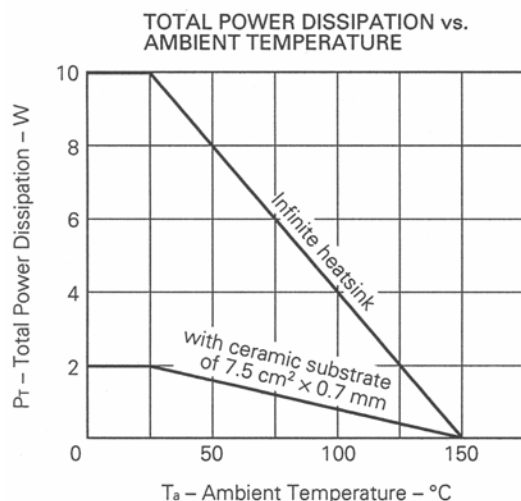
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			10	μA	$V_{CB} = 400\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			10	μA	$V_{EB} = 5.0\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	20	42	80		$V_{CE} = 5.0\text{ V}, I_C = 50\text{ mA}$
DC Current Gain	h_{FE2}^*	10	20			$V_{CE} = 5.0\text{ V}, I_C = 300\text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.2	0.5	V	$I_C = 300\text{ mA}, I_B = 60\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^*$		0.85	1.0	V	$I_C = 300\text{ mA}, I_B = 60\text{ mA}$
Turn-on Time	t_{on}		0.12	1.0	μs	$I_C = 0.3\text{ A}, R_L = 500\ \Omega$ $V_{CC} = 150\text{ V}, PW = 50\ \mu\text{s}$ $I_{B1} = -I_{B2} = 0.06\text{ A}$ Duty Cycle $\leq 2\%$
Storage Time	t_{stg}		2.0	2.5	μs	
Fall Time	t_f		0.35	1.0	μs	

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

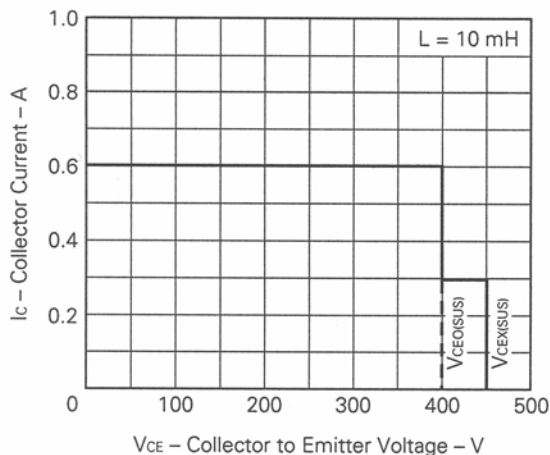
hFE Classification

MARKING	M	L	K
h_{FE1}	20 to 40	30 to 60	40 to 80

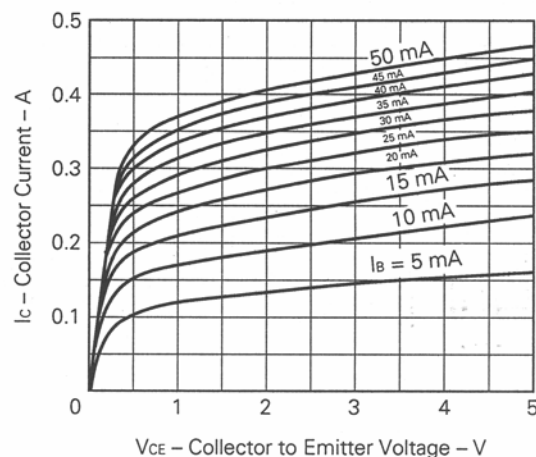
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



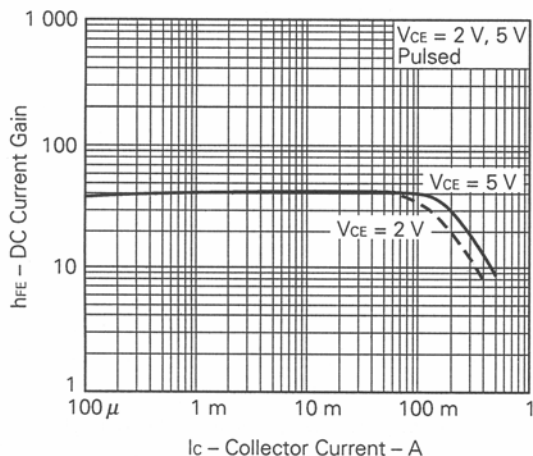
REVERSE BIAS
SAFE OPERATING AREA



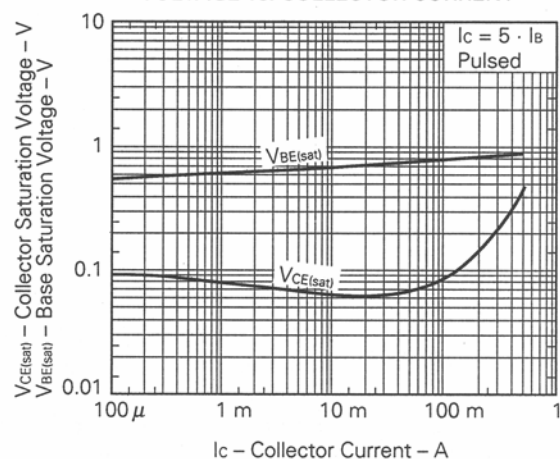
COLLECTOR CURRENT vs. COLLECTOR
TO EMITTER VOLTAGE



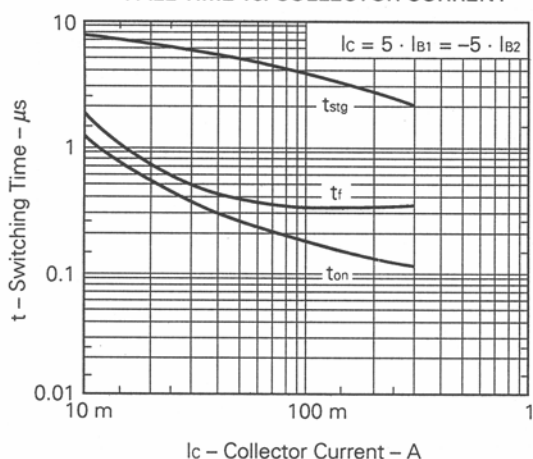
DC CURRENT GAIN vs.
COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT



TURN ON TIME, STORAGE TIME AND
FALL TIME vs. COLLECTOR CURRENT



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