

PNP SILICON TRIPLE DIFFUSED TRANSISTOR

DESCRIPTION

The 2SA1412-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High Voltage: $V_{CEO} = -400$ V
- High Speed: $t_r \leq 0.7 \mu s$
- Complement to 2SC3631-Z

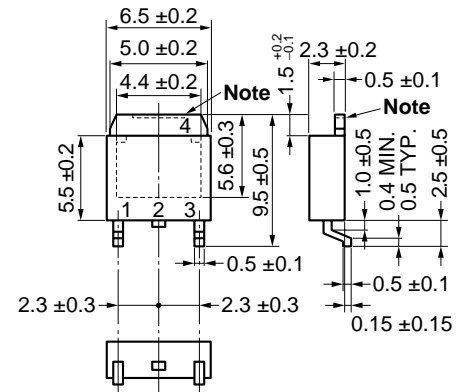
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$)

Collector to base voltage	V_{CBO}	-400	V
Collector to emitter voltage	V_{CEO}	-400	V
Base to emitter voltage	V_{EBO}	-7	V
Collector current (DC)	$I_{C(DC)}$	-2.0	A
Collector current (pulse) ^{Note 1}	$I_{C(pulse)}$	-4.0	A
Total power dissipation ($T_A = 25^\circ C$) ^{Note 2}	P_T	2.0	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

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)



- TO-252 (MP-3Z)
1. Base
 2. Collector
 3. Emitter
 4. Collector Fin

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

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

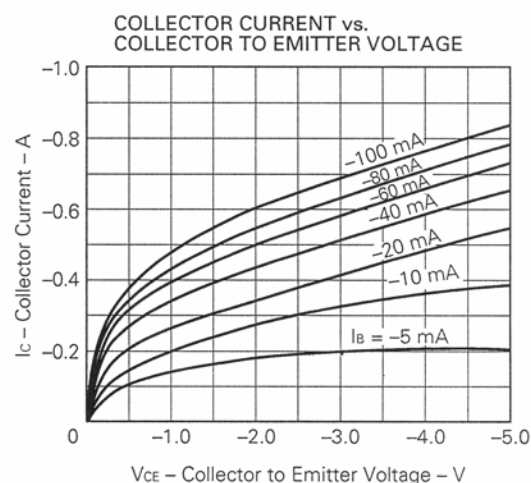
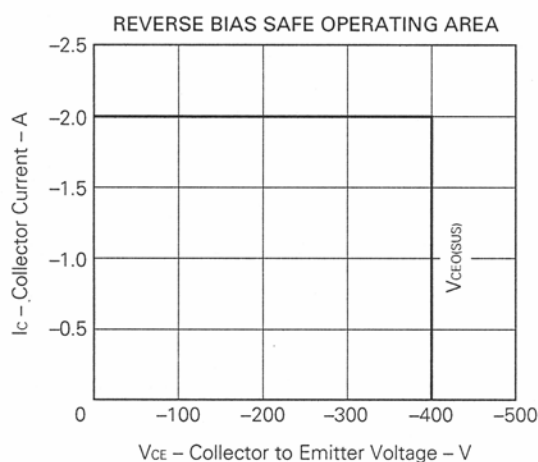
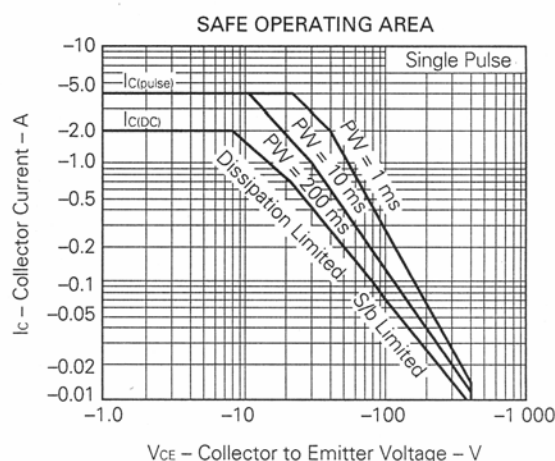
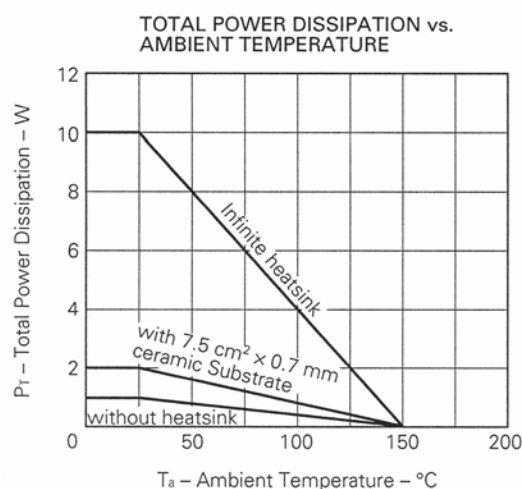
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-10	μA	$V_{CB} = -400\text{ V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			-10	μA	$V_{EB} = -5.0\text{ V}$, $I_C = 0$
DC Current Gain	h_{FE1}^*	40	60	120		$V_{CE} = -5.0\text{ V}$, $I_C = -0.1\text{ A}$
DC Current Gain	h_{FE2}^*	10	22			$V_{CE} = -5.0\text{ V}$, $I_C = -1.0\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		-0.25	-0.5	V	$I_C = -0.5\text{ A}$, $I_B = -0.1\text{ A}$
Base Saturation Voltage	$V_{BE(sat)}^*$		-0.85	-1.2	V	$I_C = -0.5\text{ A}$, $I_B = -0.1\text{ A}$
Gain Bandwidth Product	f_T		40		MHz	$V_{CE} = -10\text{ V}$, $I_E = -100\text{ mA}$
Output Capacitance	C_{ob}		30		pF	$V_{CB} = -10\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$
Turn-on Time	t_{on}		0.03	0.5	μs	$I_C = -1.0\text{ A}$, $R_L = 150\ \Omega$ $I_{B1} = -I_{B2} = -0.2\text{ A}$, $V_{CC} = -150\text{ V}$
Storage Time	t_{stg}		1.4	2.0	μs	
Fall time	t_f		0.1	0.7	μs	

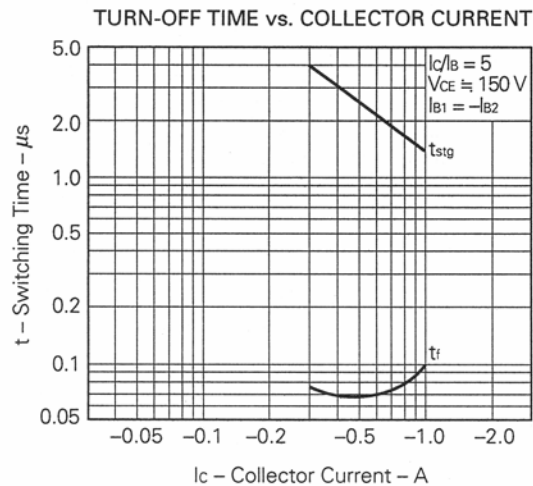
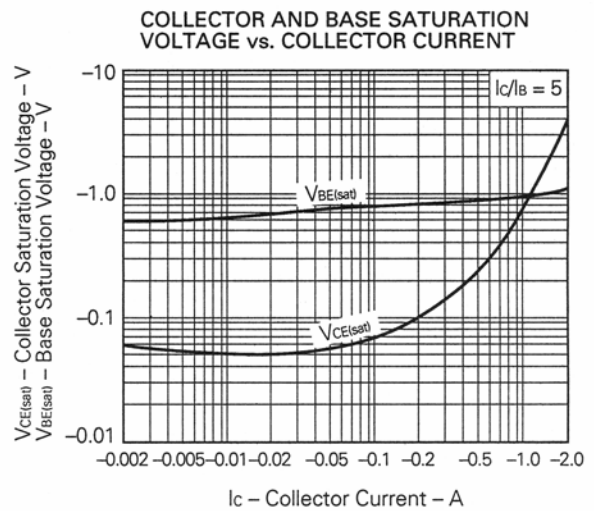
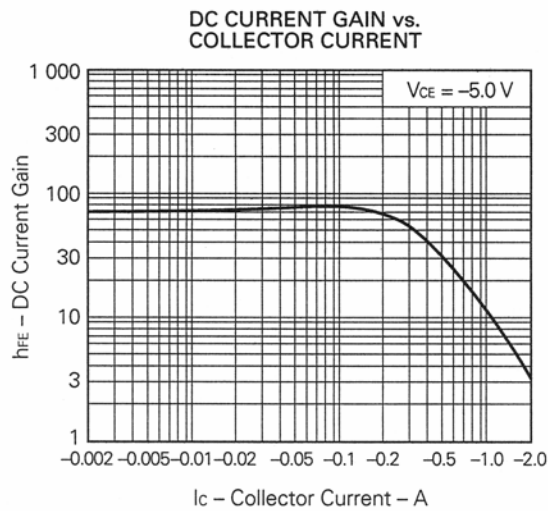
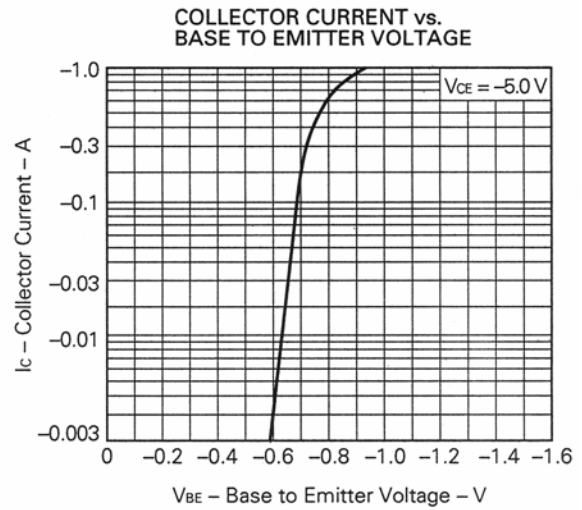
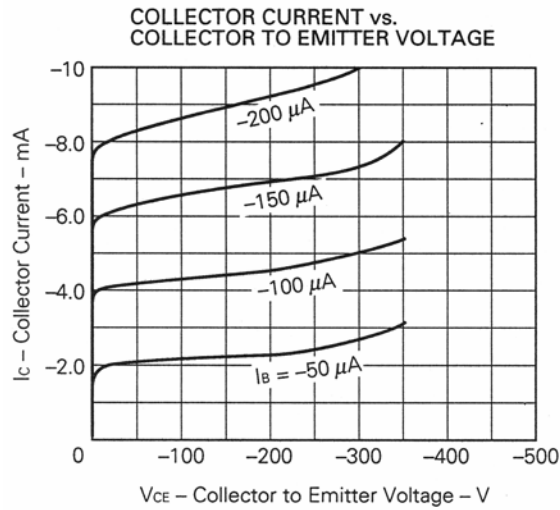
* Pulsed: $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$

hFE Classification

MARKING	L	K
h_{FE1}	40 to 80	60 to 120

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





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