

PNP SILICON TRIPLE DIFFUSED TRANSISTOR
MP-3

DESCRIPTION

2SA1400-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High Voltage : $V_{CEO} = -400$ V
- High Speed : $\tau_r \leq 1.0 \mu s$
- Complement to 2SC3588-Z

QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

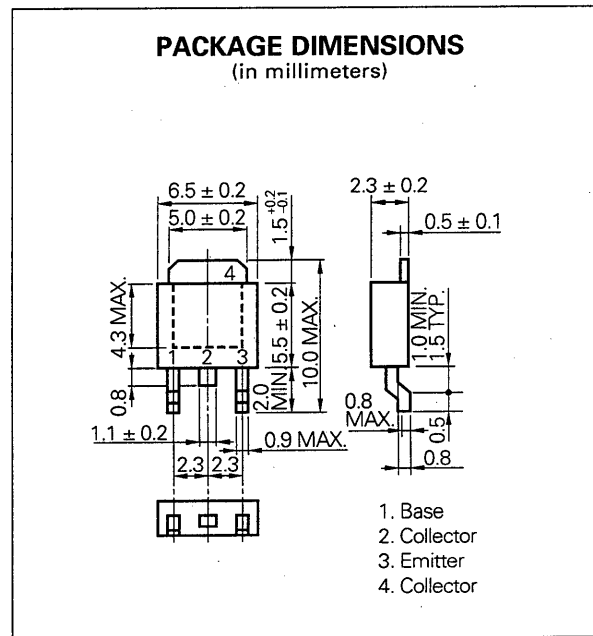
ABSOLUTE MAXIMUM RATINGS ($T_a = 25 \text{ }^\circ\text{C}$)

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

* $PW \leq 300 \mu s$, Duty Cycle $\leq 10 \%$

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

PACKAGE DIMENSIONS
(in millimeters)



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

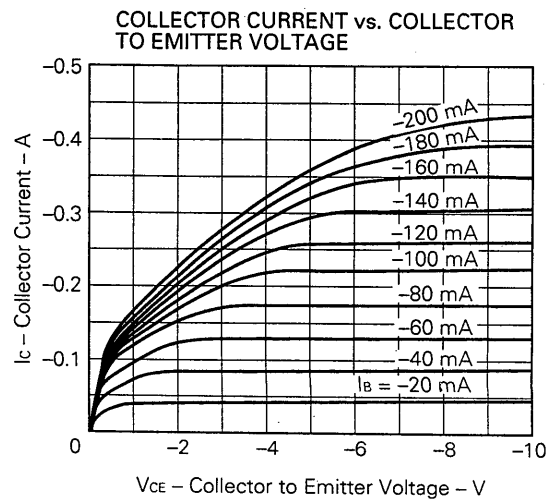
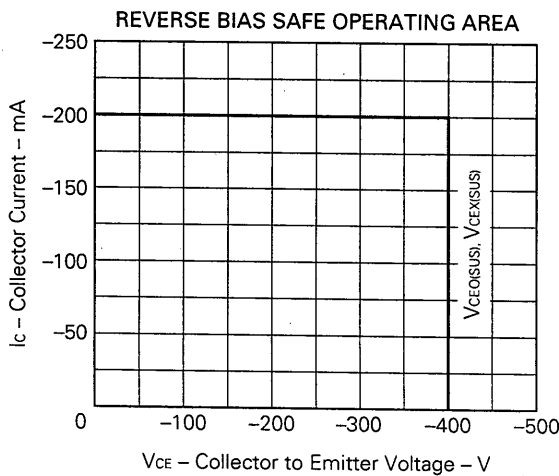
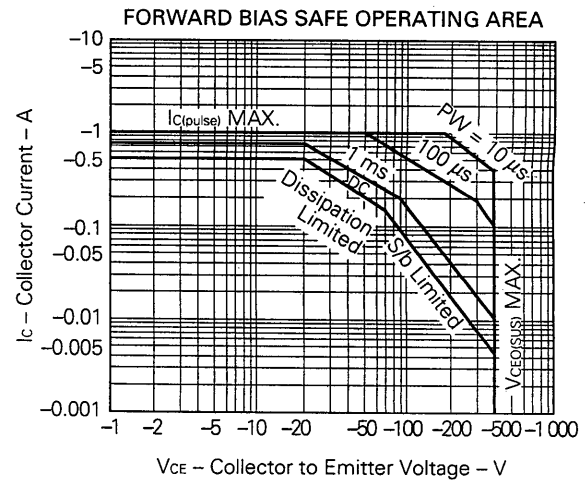
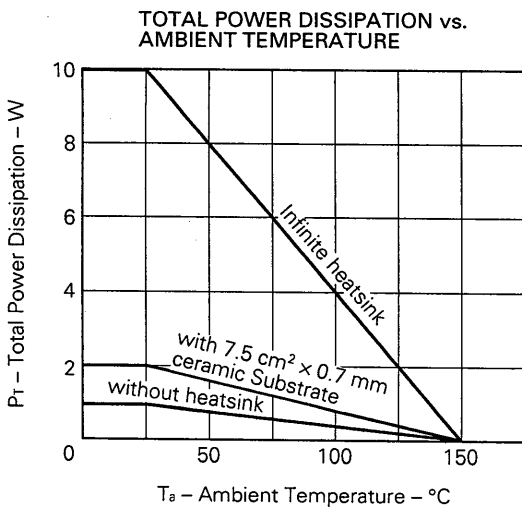
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I _{cBO}			-100	μA	V _{CB} = -400 V, I _E = 0
Emitter Cutoff Current	I _{EBO}			-10	μA	V _{EB} = -5.0 V, I _C = 0
DC Current Gain	h _{FE} *	30		200		V _{CE} = -5.0 V, I _C = -50 mA
Collector Saturation Voltage	V _{CE(sat)} *			-1.0	V	I _C = -100 mA, I _B = -10 mA
Base Saturation Voltage	V _{BE(sat)} *			-1.2	V	I _C = -100 mA, I _B = -10 mA
Turn-on Time	t _{on}			1.0	μs	I _C = -100 mA, R _L = 1.5 kΩ
Storage Time	t _{stg}			5.0	μs	I _{B1} = -I _{B2} = -10 mA, V _{CC} = -150 V
Fall time	t _r			1.0	μs	PW ≤ 50 μs, Duty Cycle ≤ 2 %

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

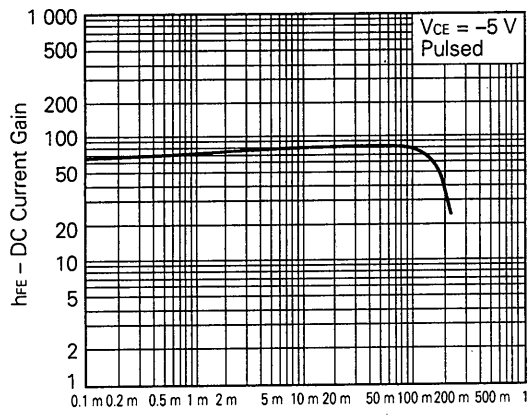
h_{FE} Classification

MARKING	N	M	L	K
h _{FE}	30 to 60	40 to 80	60 to 120	100 to 200

TYPICAL CHARACTERISTICS (T_a = 25 °C)

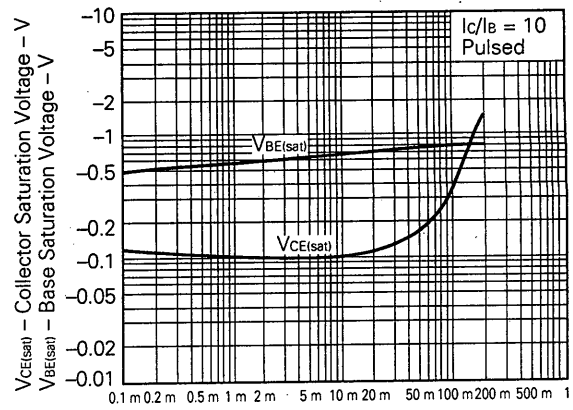


DC CURRENT GAIN vs. COLLECTOR CURRENT



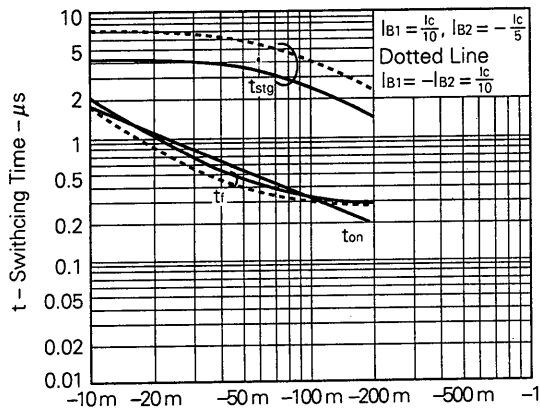
I_c - Collector Current - A

BASE COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



I_c - Collector Current - A

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



I_c - Collector Current - A

Reference

Application note name	No.
Quality control of NEC semiconductors devices.	TEI-1202
Quality control guide of semiconductors devices.	MEI-1202
Assembly manual of semiconductors devices.	IEI-1207
Design of Push-Pull Type Switching Regulators (Basic).	TEB-1002
Design of Push-Pull Type Switching Regulators (Applications).	TEB-1003
Optimum Base Drive Conditions of Switching Power Transistors.	TEB-1014

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The devices listed in this document are not suitable for use in aerospace equipment, submarine cables, nuclear reactor control systems and life support systems. If customers intend to use NEC devices for above applications or they intend to use "Standard" quality grade NEC devices for applications not intended by NEC, please contact our sales people in advance.

Application examples recommended by NEC Corporation.

Standard: Computer, Office equipment, Communication equipment, Test and Measurement equipment, Machine tools, Industrial robots, Audio and Visual equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Traffic control systems, Antidisaster systems, Anticrime systems, etc.