

SILICON TRANSISTOR
2SD1286-Z

NPN SILICON EPITAXIAL TRANSISTOR
MP-3

DESCRIPTION

2SD1286-Z is designed for Switching, especially in Hybrid Integrate Circuits.

FEATURES

- High h_{FE} : $h_{FE} = 2\,000$ to $30\,000$
- Complement to 2SB963-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.

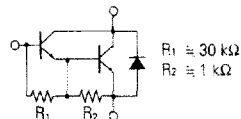
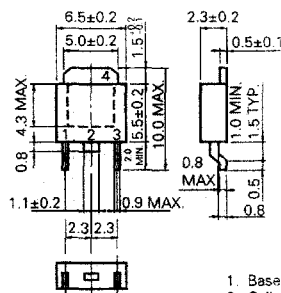
ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Collector to Base Voltage	V _{CB0}	60	V
Collector to Emitter Voltage	V _{CE0}	60	V
Emitter to Base Voltage	V _{EB0}	8	V
Collector Current (DC)	I _c	1	A
Collector Current (Pulse)*	I _c	2	A
Total Power Dissipation (T _a = 25 °C)**	P _T	2.0	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

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

** When mounted on ceramic substrate of 7.5 cm² × 0.7 mm

PACKAGE DIMENSIONS



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

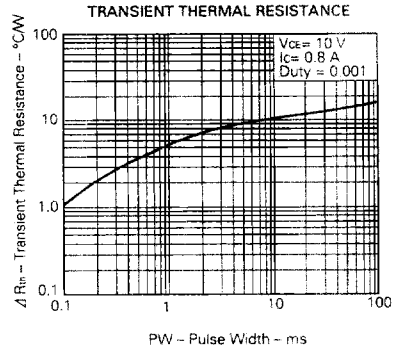
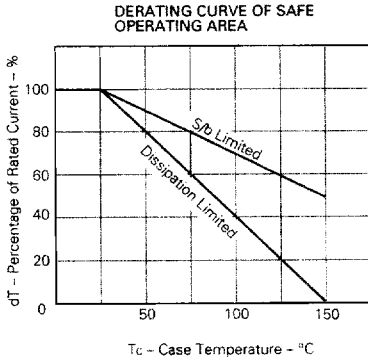
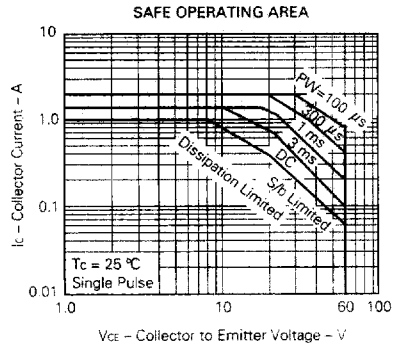
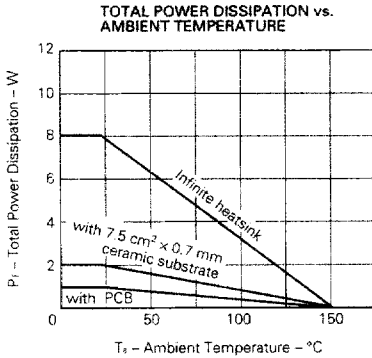
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			10	μA	$V_{CE} = 60\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			1.0	mA	$V_{EB} = 5.0\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	1 000				$V_{CE} = 2.0\text{ V}, I_C = 0.2\text{ A}$
DC Current Gain	h_{FE2}^*	2 000		30 000		$V_{CE} = 2.0\text{ V}, I_C = 0.5\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}^*$			1.5	V	$I_C = 500\text{ mA}, I_B = 0.5\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^*$			2.0	V	$I_C = 500\text{ mA}, I_B = 0.5\text{ mA}$
Turn-on Time	t_{on}		0.5		μs	$I_C = 0.5\text{ A}, R_L = 100\ \Omega$
Storage Time	t_{stg}		1.0		μs	$I_{B1} = -I_{B2} = 0.1\text{ mA}$
Fall Time	t_f		1.0		μs	$V_{CC} = 50\text{ V}$

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

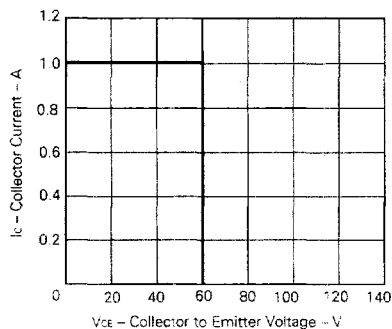
hFE Classification

MARKING	M	L	K
hFE2	2 000 to 5 000	4 000 to 10 000	8 000 to 30 000

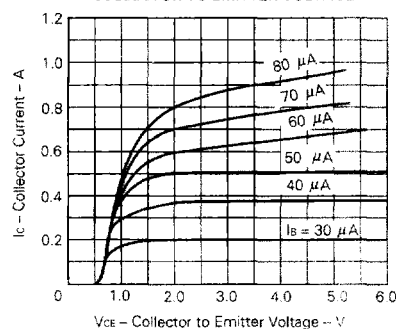
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



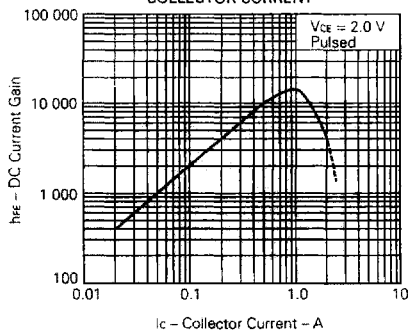
REVERSE BIAS SAFE OPERATING AREA



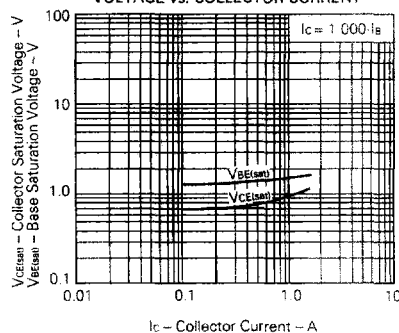
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



SWITCHING TIME (t_{on} , t_{sig} , t_f) TEST CIRCUIT

