

NPN SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SD1584-Z is designed for Audio Frequency Amplifier and Switching, especially in Hybrid Integrated Circuits.

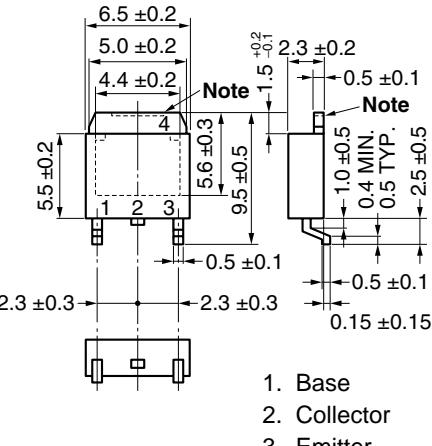
FEATURES

- High h_{FE} : $h_{FE} = 800$ to 3200
- Low $V_{CE(sat)}$: $V_{CE(sat)} = 0.25$ V TYP.

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

Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	7	V
Collector Current (DC)	$I_{C(DC)}$	3	A
Collector Current (pulse) ^{Note 1}	$I_{C(pulse)}$	5	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	$^\circ\text{C}$

<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.

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

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

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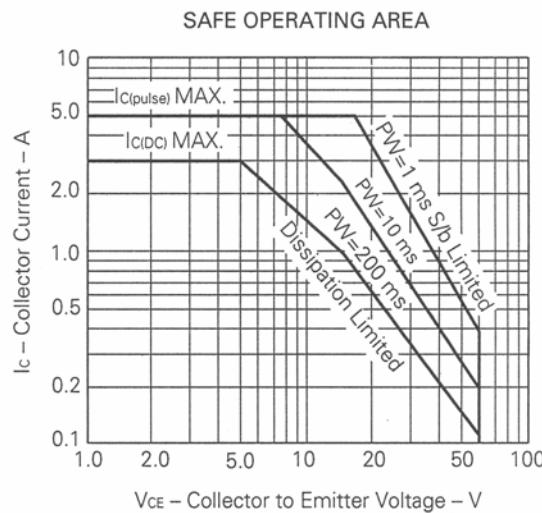
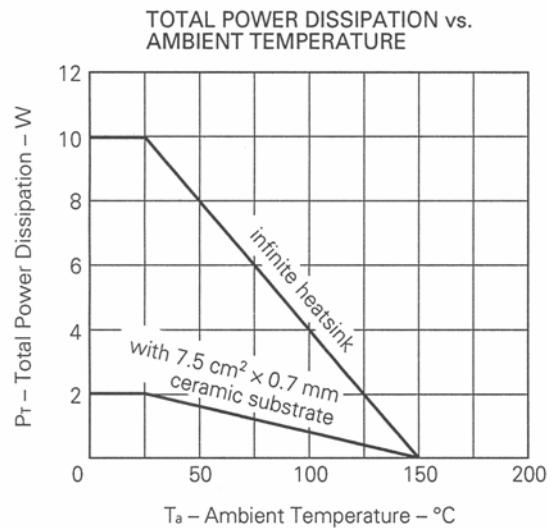
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

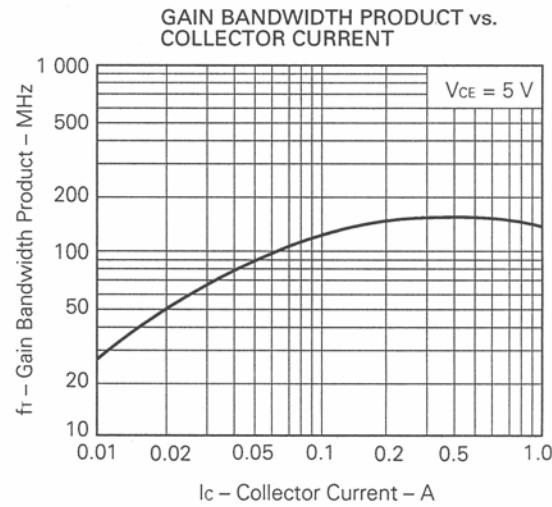
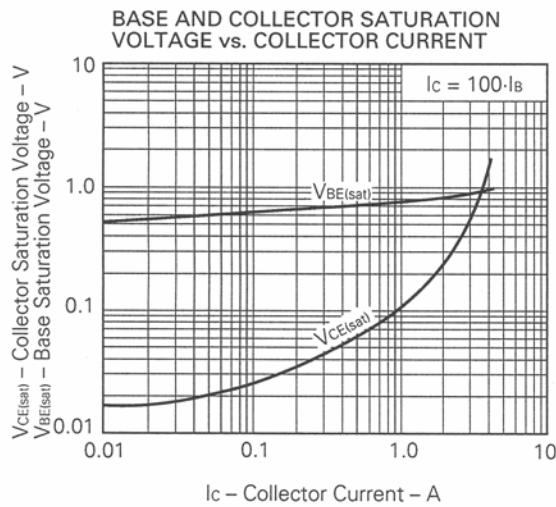
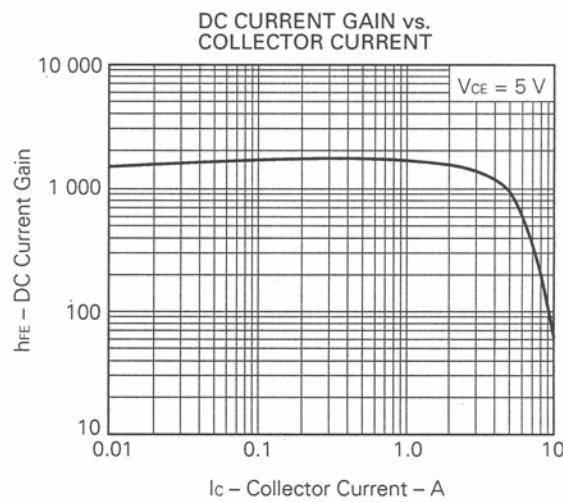
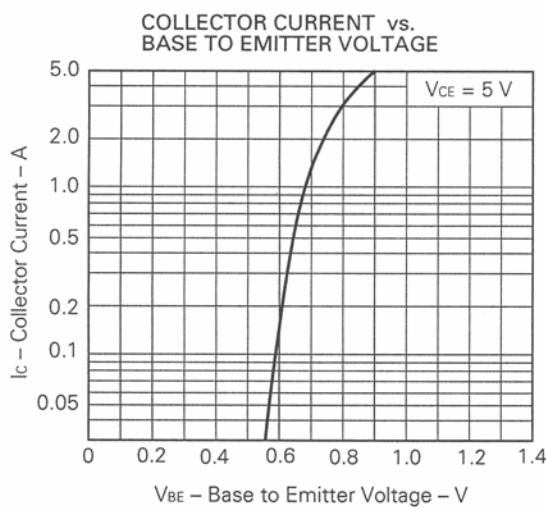
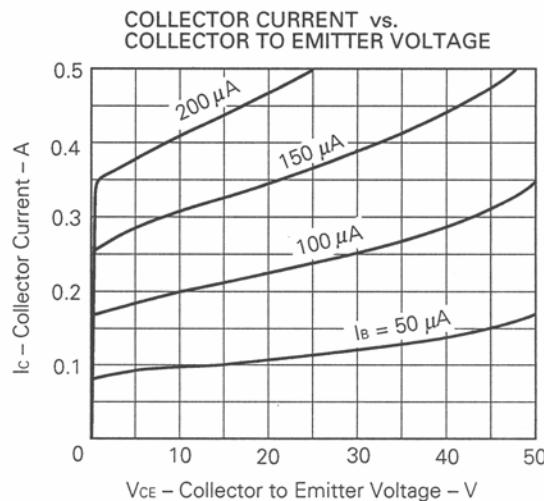
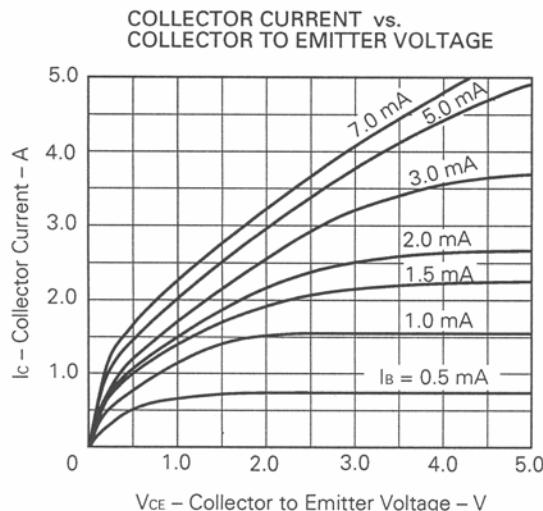
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			10	μA	$V_{CB} = 60\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			10	μA	$V_{EB} = 5.0\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	600	1 650			$V_{CE} = 5.0\text{ V}, I_C = 50\text{ mA}$
DC Current Gain	h_{FE2}^*	800	1 800	3 200		$V_{CE} = 5.0\text{ V}, I_C = 500\text{ mA}$
DC Current Gain	h_{FE3}^*	500	1 400			$V_{CE} = 5.0\text{ V}, I_C = 3.0\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.25	0.5	V	$I_C = 2.0\text{ A}, I_B = 20\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^*$		0.8	1.2	V	$I_C = 2.0\text{ A}, I_B = 20\text{ mA}$
Gain Bandwidth Product	f_T	50	120		MHz	$V_{CE} = 5.0\text{ V}, I_E = -100\text{ mA}$
Output Capacitance	C_{ob}		20		pF	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$
Turn-on Time	t_{on}		0.9		μs	$I_C = 2.0\text{ A}, R_L = 5\Omega$ $I_{B1} = -I_{B2} = 20\text{ mA}$ $V_{CC} = 10\text{ V}$
Storage Time	t_{stg}		2.6		μs	
Fall Time	t_f		1.0		μs	

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

h_{FE} Classification

MARKING	M	L	K
h_{FE2}	800 to 1 600	1 000 to 2 000	1 600 to 3 200

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



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