

NPN SILICON EPITAXIAL TRANSISTOR
FOR LOW-FREQUENCY POWER AMPLIFIERS

The 2SD1582 is a single type super high h_{FE} transistor and low collector saturation voltage and high voltage. This transistor is available for broad applications as variety of drives.

FEATURES

- Ultra high h_{FE}
 $h_{FE} = 800$ to 3200 (@ $V_{CE} = 5.0$ V, $I_C = 300$ mA)
- High voltage and wide ASO
 $V_{CBO} = 60$ V, $V_{CEO} = 50$ V
- Low collector saturation voltage
 $V_{CE(sat)} = 0.15$ V TYP. (@ $I_C = 500$ A, $I_B = 5.0$ mA)

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

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	15	V
Collector current (DC)	$I_{C(DC)}$	1.0	A
Collector current (pulse)	$I_{C(pulse)}^*$	1.5	A
Total power dissipation	P_T	1.0	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-50 to +150	$^\circ\text{C}$

* $PW \leq 10$ ms, duty cycle $\leq 50\%$

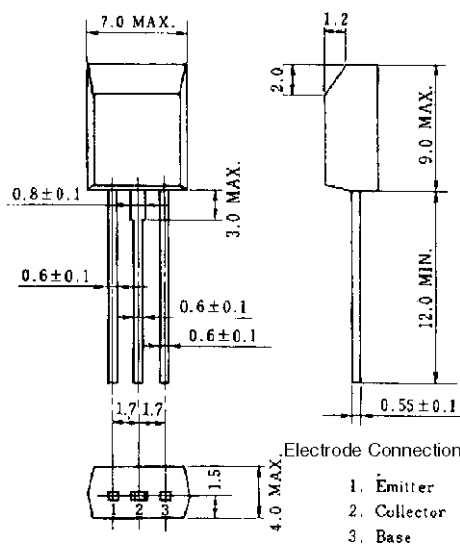
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Collector cutoff current	I_{CBO}	$V_{CB} = 60$ V, $I_E = 0$			100	nA	
Emitter cutoff current	I_{EBO}	$V_{EB} = 10$ V, $I_C = 0$			100	nA	
DC current gain	h_{FE1}	$V_{CE} = 5.0$ V, $I_C = 300$ mA	*	800	1500	3200	-
DC current gain	h_{FE2}	$V_{CE} = 5.0$ V, $I_C = 1.0$ mA	*	400			-
DC base voltage	V_{BE}	$V_{CE} = 5.0$ V, $I_C = 100$ mA	*	600	620	700	mV
Collector saturation voltage	$V_{CE(sat)}$	$I_C = 500$ mA, $I_B = 5.0$ mA	*		0.15	0.30	V
Base saturation voltage	$V_{BE(sat)}$	$I_C = 500$ mA, $I_B = 5.0$ mA	*		0.77	1.2	V
Output capacitance	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, $f = 1.0$ MHz		18	30		pF
Gain bandwidth product	f_r	$V_{CE} = 10$ V, $I_E = -500$ mA		150	250		MHz

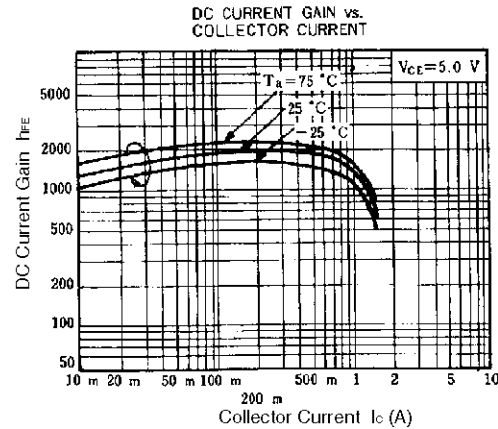
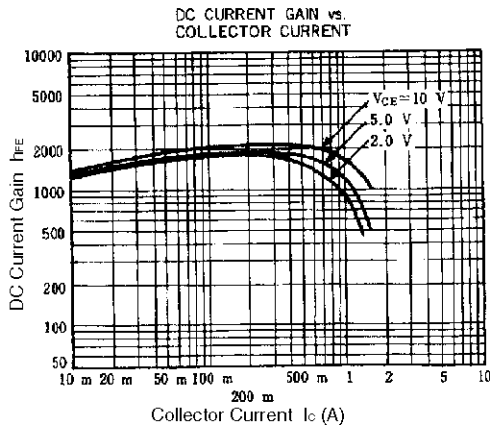
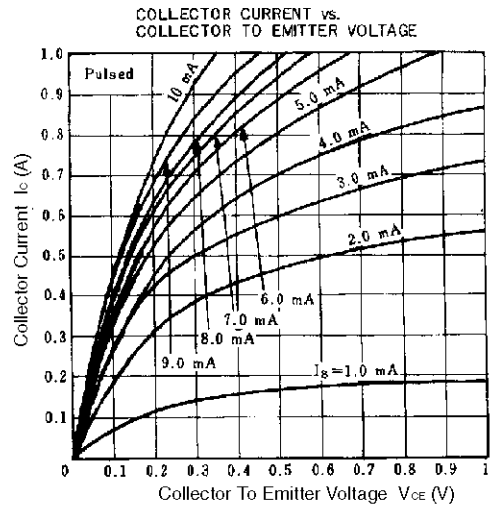
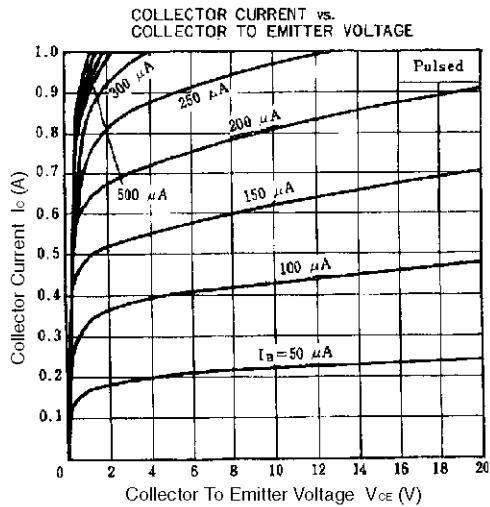
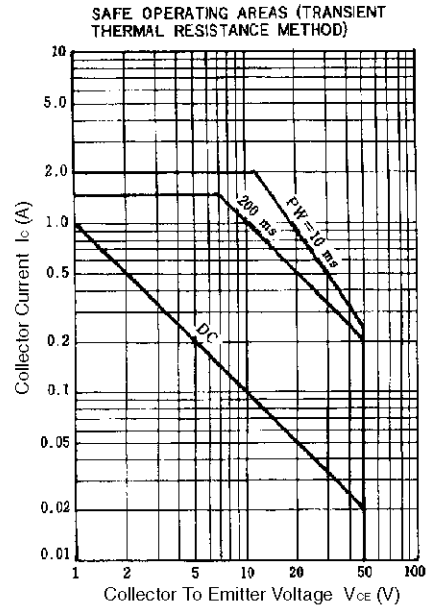
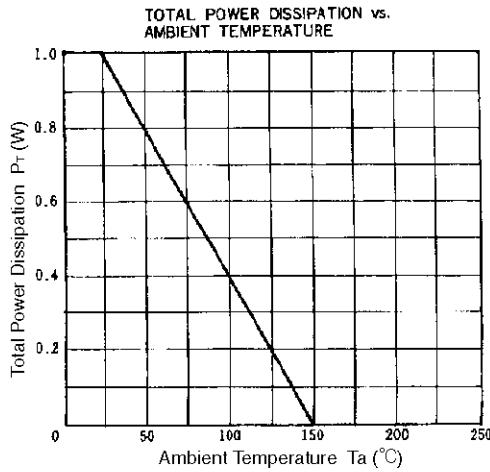
** Pulse test $PW \leq 350$ μs , duty cycle $\leq 2\%$ per pulsed

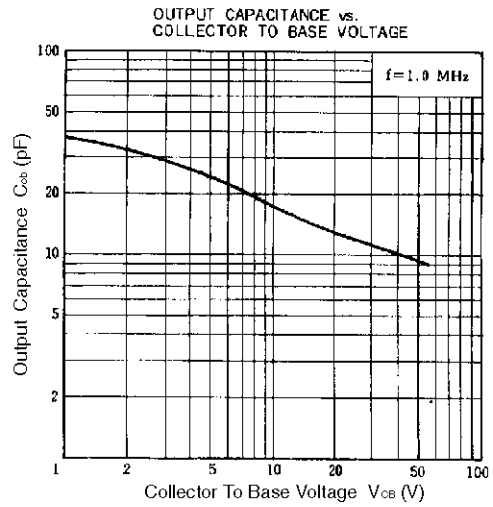
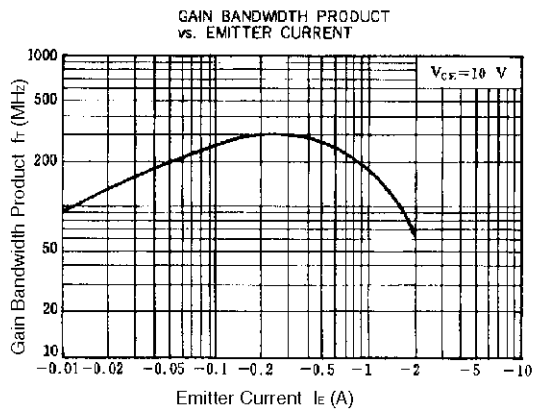
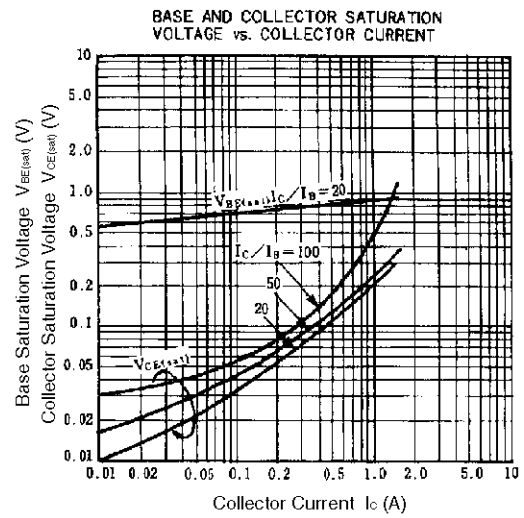
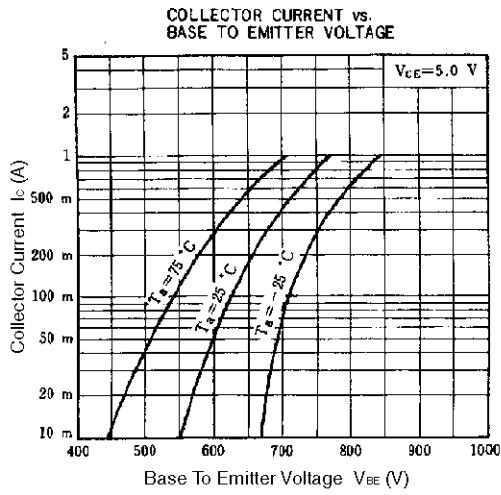
h_{FE1}/h_{FE} CLASSIFICATION M : 800 to 1600 L : 1200 to 2400 K : 2000 to 3200

PACKAGE DRAWING (UNIT: mm)



TYPICAL CHARACTERISTICS (Ta = 25°C)





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