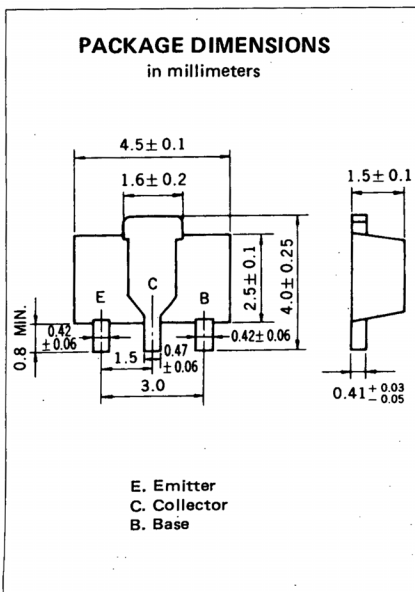


NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

DESCRIPTION

The 2SD1950 is designed for general-purpose applications requiring High DC Current Gain.
This is suitable for all kind of driving or muting.



FEATURES

- High DC Current Gain and good h_{FE} linearity.
 $h_{FE} = 800$ to $3\ 200$ ($V_{CE} = 5.0\ V$, $I_C = 1.0\ A$)
- Low Collector Saturation Voltage.
 $V_{CE(sat)} = 0.18\ V$ TYP. ($I_C = 1.0\ A$, $I_B = 10\ mA$)
- High V_{EBO} : $V_{EBO} = 15\ V$

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

Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	25	V
Emitter to Base Voltage	V_{EBO}	15	V
Collector Current (DC)	I_C (DC)	2	A
Collector Current (Pulse)*	I_C (Pulse)	3	A
Total Power Dissipation**	P_T	2.0	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ C$

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

** When mounted on ceramic substrate of $16\ cm^2 \times 0.7\ mm$

ELECTRICAL CHARACTERISTICS ($T_A = 25\ ^\circ C$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDICTIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 30\ V$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 10\ V$, $I_C = 0$
DC Current Gain	h_{FE1}^{***}	800	1500	3200		$V_{CE} = 5.0\ V$, $I_C = 1.0\ A$
DC Current Gain	h_{FE2}^{***}	400				$V_{CE} = 5.0\ V$, $I_C = 2.0\ A$
Collector Saturation Voltage	$V_{CE(sat)}^{***}$		0.18	0.3	V	$I_C = 1.0\ A$, $I_B = 10\ mA$
Base Saturation Voltage	$V_{BE(sat)}^{***}$		0.83	1.2	V	$I_C = 1.0\ A$, $I_B = 10\ mA$
Base to Emitter Voltage	V_{BE}^{***}	600	660	700	mV	$V_{CE} = 5.0\ V$, $I_C = 300\ mA$
Gain Bandwidth Product	f_T	150	350		MHz	$V_{CE} = 10\ V$, $I_E = -500\ mA$
Output Capacitance	C_{ob}		26	35	pF	$V_{CB} = 10\ V$, $I_E = 0$, $f = 1.0\ MHz$

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

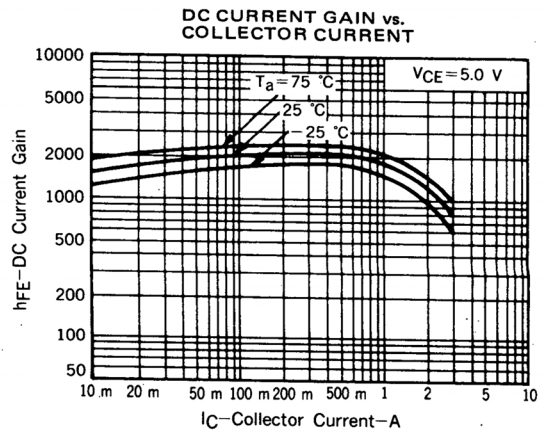
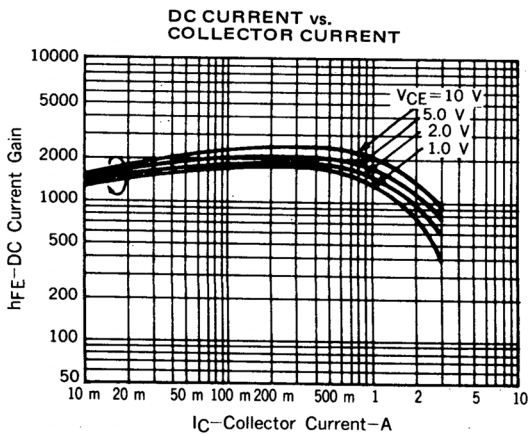
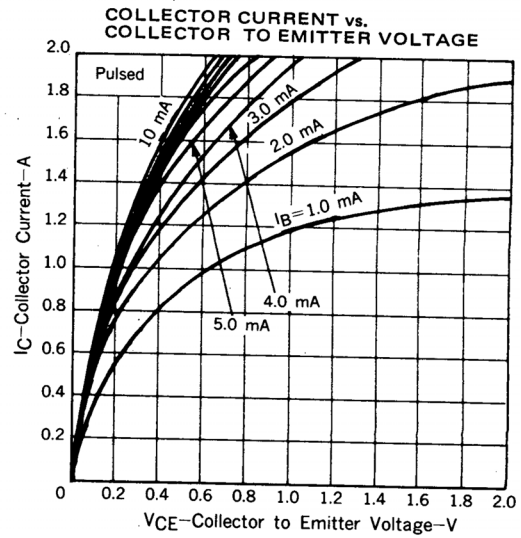
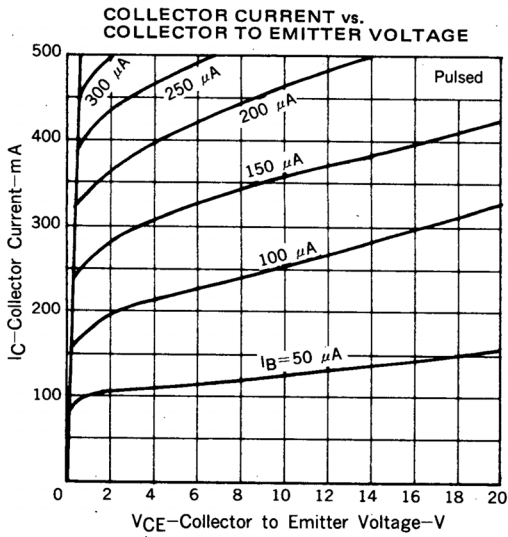
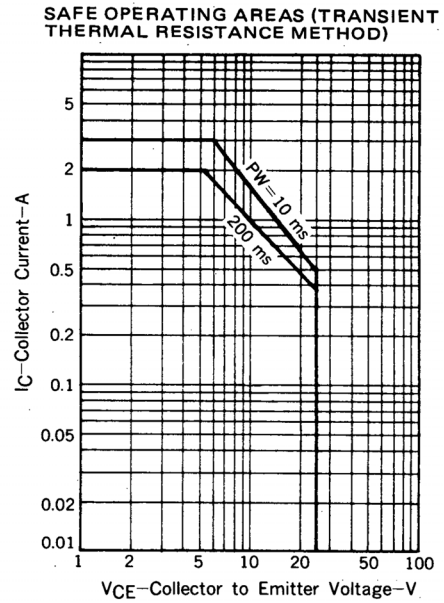
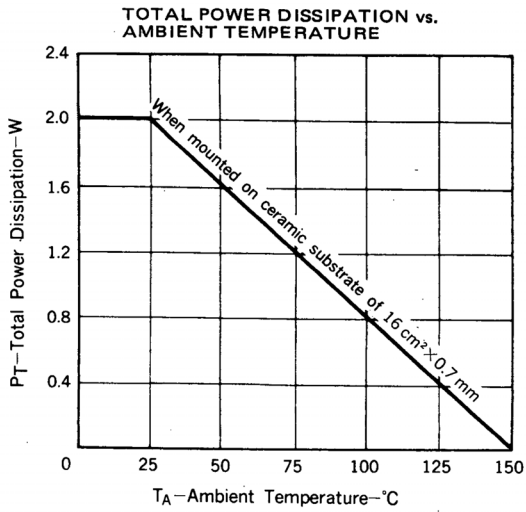
h_{FE} Classification

MARKING	VM	VL	VK
h_{FE1}	800 to 1600	1200 to 2400	2000 to 3200

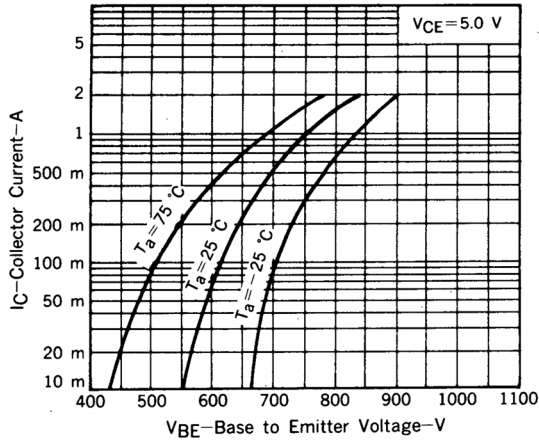
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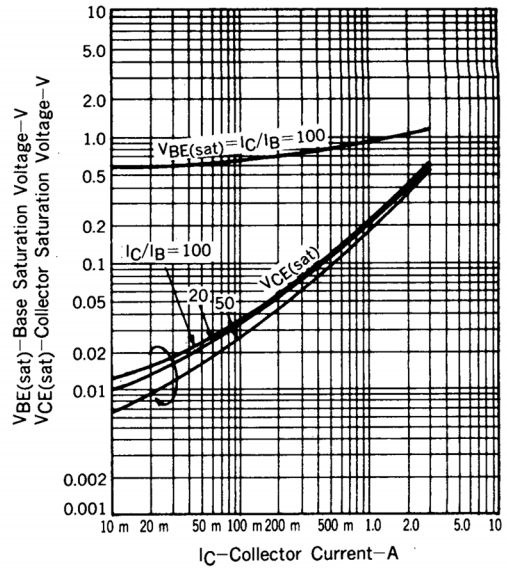
TYPICAL CHARACTERISTICS (T_A = 25°C)



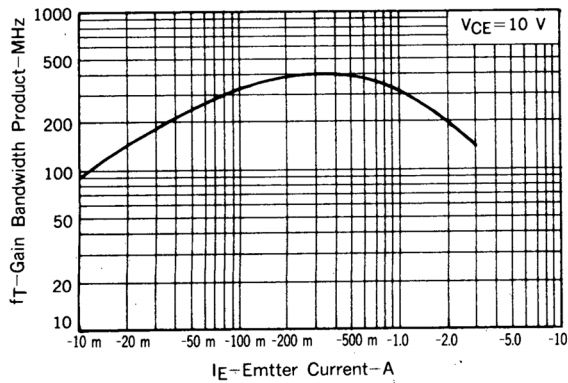
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



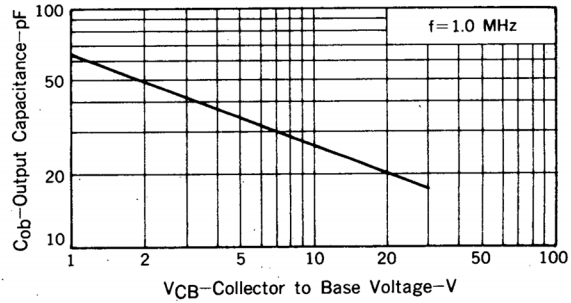
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



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