



TO-92S Plastic-Encapsulate Transistors

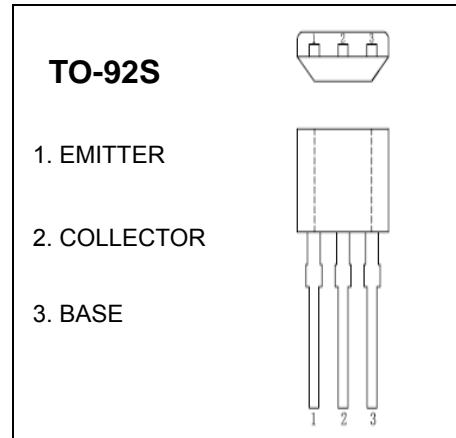
2SC2785 TRANSISTOR (NPN)

FEATURES

- High voltage
- Excellent h_{FE} Linearity
- Complementary to 2SA1175 PNP transistor

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	0.1	A
P_C	Collector Power Dissipation	0.25	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=60\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=6\text{V}, I_C=1\text{mA}$	110		600	
	$h_{FE(2)}$	$V_{CE}=6\text{V}, I_C=0.1\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			1	V
Base-emitter voltage	V_{BE}	$V_{CE}=6\text{V}, I_C=1\text{mA}$			0.65	V
Transition frequency	f_T	$V_{CE}=6\text{V}, I_C=10\text{mA}$	150			MHz
Collector output capacitance	C_{ob}	$V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$			4	pF
Noise figure	NF	$V_{CE}=6\text{V}, I_C=0.1\text{mA}, f=1\text{KHZ}, R_g=2\text{K}\Omega$			15	dB

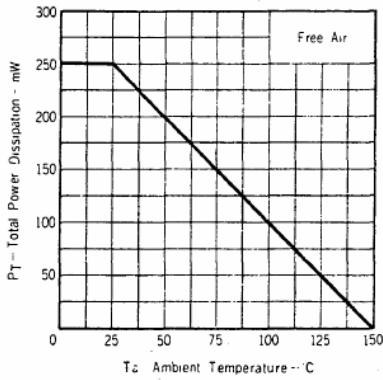
CLASSIFICATION OF $h_{FE(1)}$

Rank	RF	JF	HF	FF	EF	KF
Range	110-180	135-220	170-270	200-320	250-400	300-600

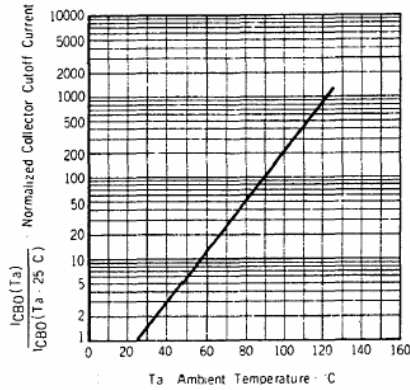
Typical Characteristics

2SC2785

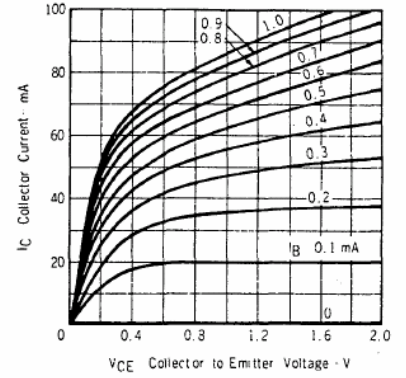
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



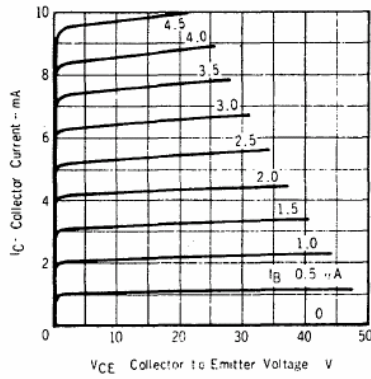
NORMALIZED COLLECTOR CUTOFF CURRENT vs. AMBIENT TEMPERATURE



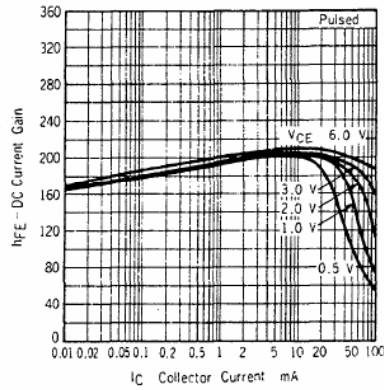
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



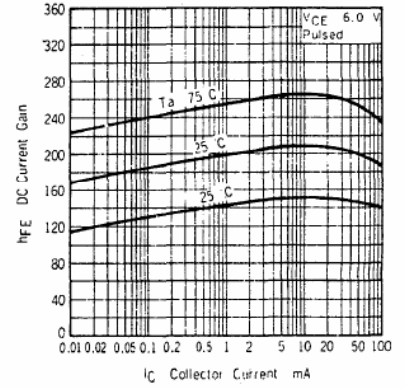
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



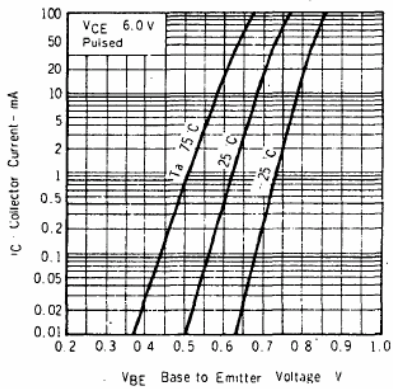
DC CURRENT GAIN vs. COLLECTOR CURRENT



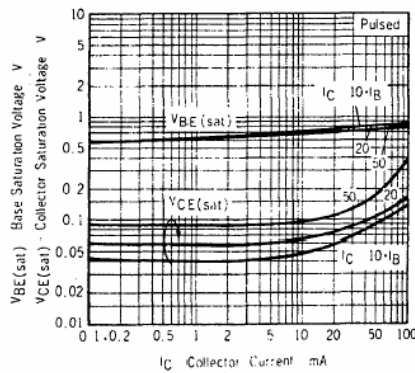
DC CURRENT GAIN vs. COLLECTOR CURRENT



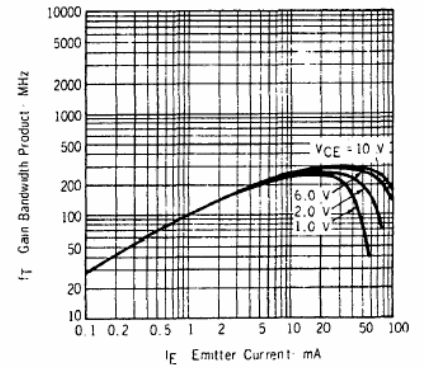
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



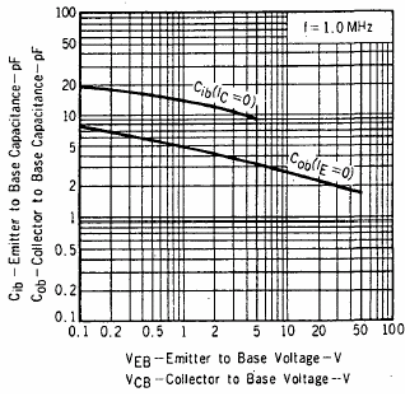
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



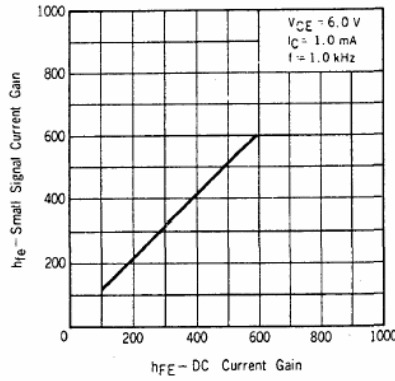
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



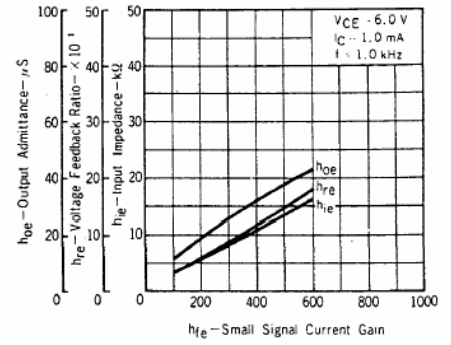
EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE



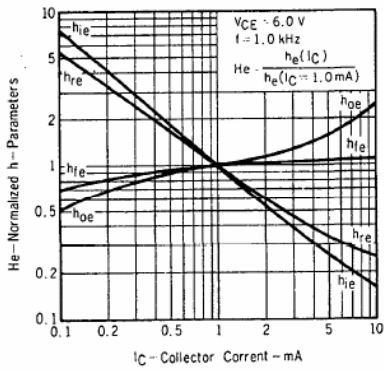
SMALL SIGNAL CURRENT GAIN vs. DC CURRENT GAIN



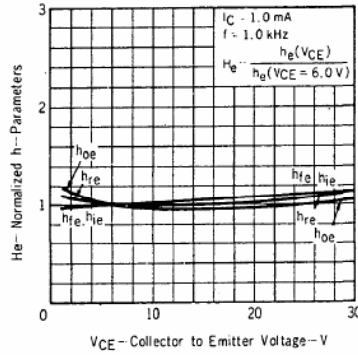
INPUT IMPEDANCE, VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN



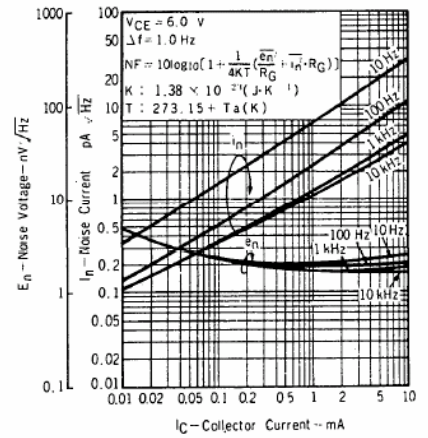
NORMALIZED h-PARAMETERS vs. COLLECTOR CURRENT



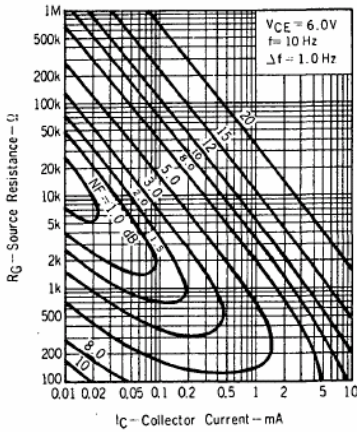
NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE



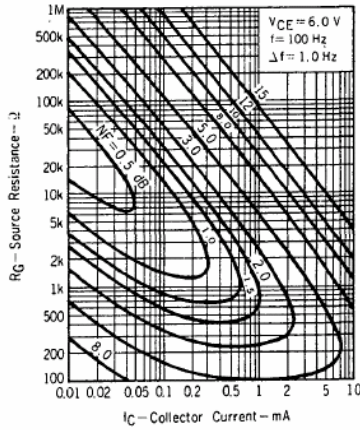
E_n AND I_n vs. COLLECTOR CURRENT



NOISE FIGURE MAP 1



NOISE FIGURE MAP 2



NOISE FIGURE MAP 3

