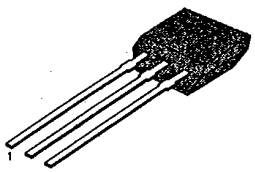
KSC2786 NPN EPITAXIAL SILICON TRANSISTOR

TV PIF AMPLIFIER, FM TUNER RF AMPLIFIER, MIXER, OSCILLATOR

- High Current-Gain-Bandwidth Product f_T=600MHz (Typ)
- High Power Gain Gpe=22dB at f=100MHz

TO-92S



1. Emitter 2. Collector 3. Base

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	mA
Collector Dissipation	P_C	250	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=10μA, I_E=0	30			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=5mA, I_B=0	20			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=−10μA, I_C=0	4			V
Collector Cut-off Current	I_{CBO}	V_{CB}=30V, I_E=0			0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=6V, I_C=1mA	40		240	
Base-Emitter On Voltage	V_{BE} (on)	V_{CE}=6V, I_C=1mA		0.72		V
Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=10mA, I_B=1mA		0.1	0.3	V
Current-Gain-Bandwidth Product	f_T	V_{CE}=6V, I_C=1mA	400	600		MHz
Output Capacitance	Cob	V_{CB}=6V, I_E=0 f=1MHz		1.2		pF
Collector-Base Time Constant	Cc·rbb'	V_{CE}=6V, I_E=−1mA f=31.9MHz		12	15	ps
Common Source Noise Figure	NF	V_{CE}=6V, I_E=−1mA Rs=50Ω, f=100MHz		3.0	5.0	dB
Power Gain	Gpe	V_{CE}=6V, I_E=−1mA Rs=50Ω, f=100MHz (Typ)	18	22		dB

h_{FE} CLASSIFICATION

Classification	R	O	Y
h_{FE}	40-80	70-140	120-240

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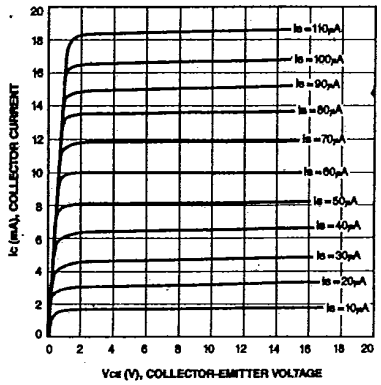
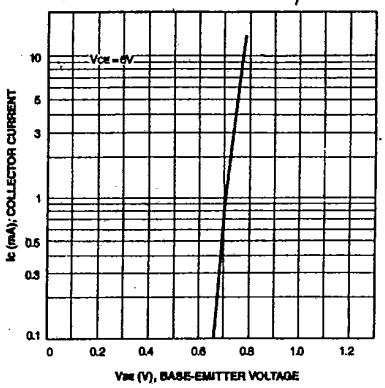
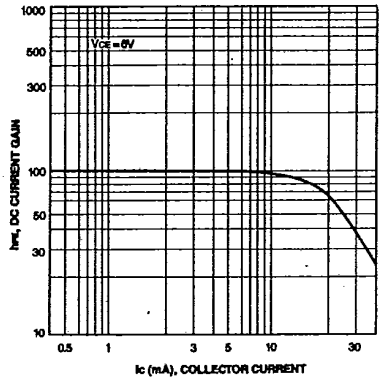
STATIC CHARACTERISTIC



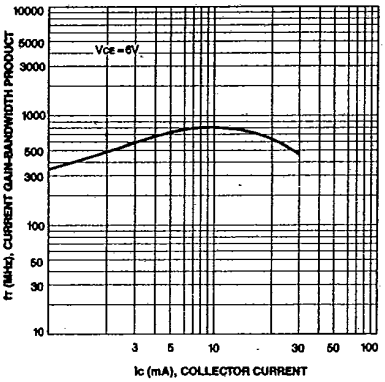
BASE-EMITTER ON VOLTAGE



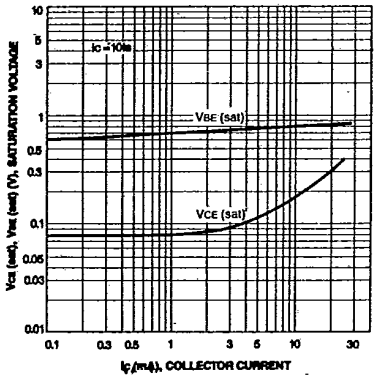
DC CURRENT GAIN



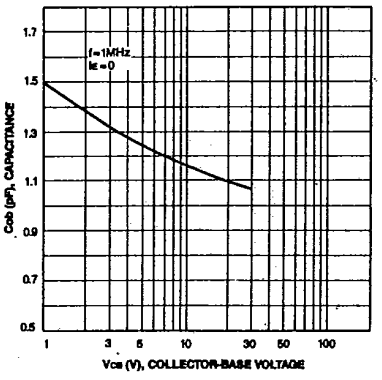
CURRENT GAIN-BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE
COLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



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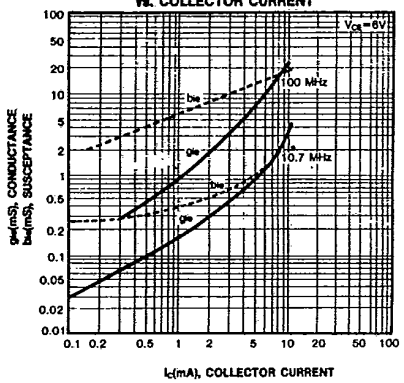
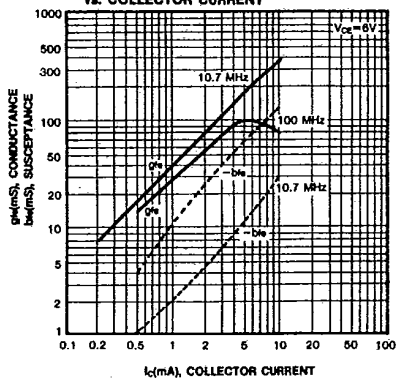
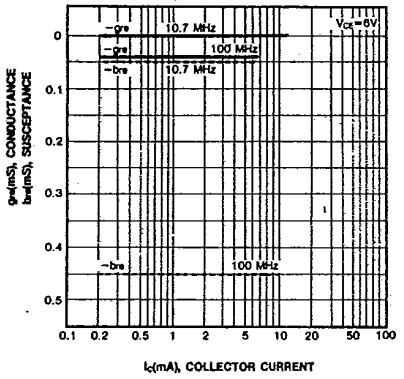
INPUT ADMITTANCE (yie) vs. COLLECTOR CURRENT



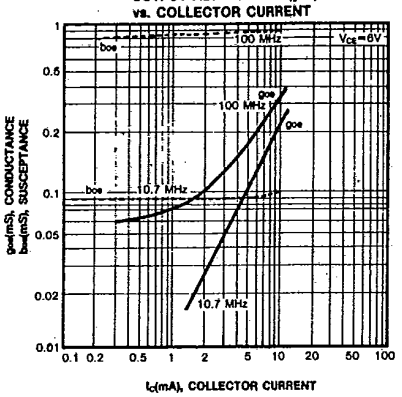
FORWARD TRANSFER ADMITTANCE (yfe) vs. COLLECTOR CURRENT



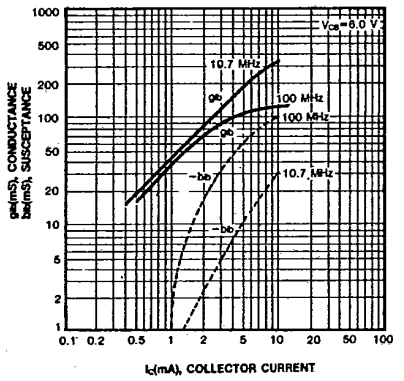
REVERSE TRANSFER ADMITTANCE (yre) vs. COLLECTOR CURRENT



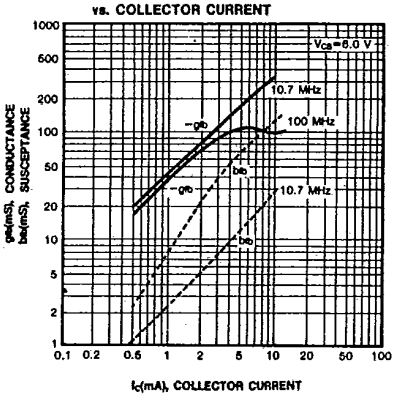
OUTPUT ADMITTANCE (yoe) vs. COLLECTOR CURRENT



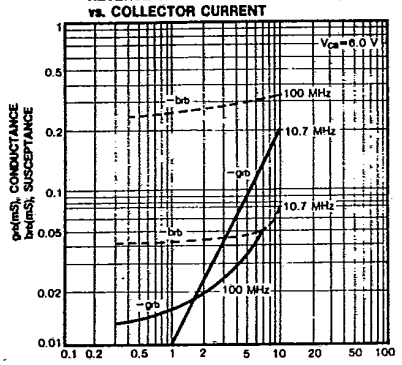
INPUT ADMITTANCE (yib) vs. COLLECTOR CURRENT



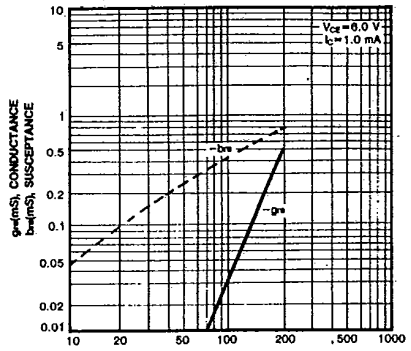
FORWARD TRANSFER ADMITTANCE (yfb) vs. COLLECTOR CURRENT



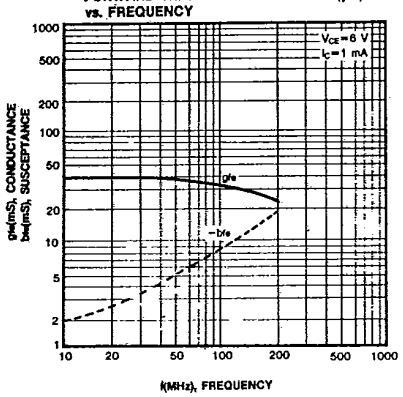
REVERSE TRANSFER ADMITTANCE (yrb) vs. COLLECTOR CURRENT



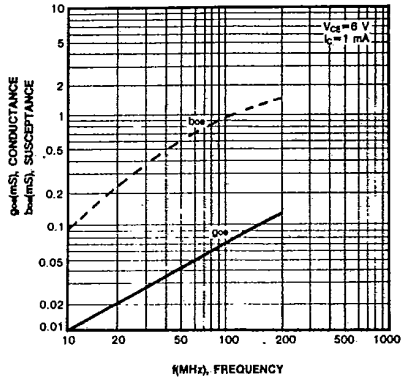
REVERS TRANSFER ADMITTANCE (yre) vs. FREQUENCY



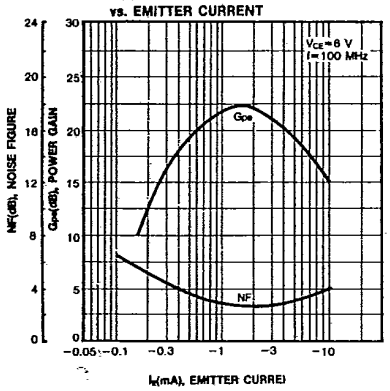
FORWARD TRANSFER ADMITTANCE (yfe) vs. FREQUENCY



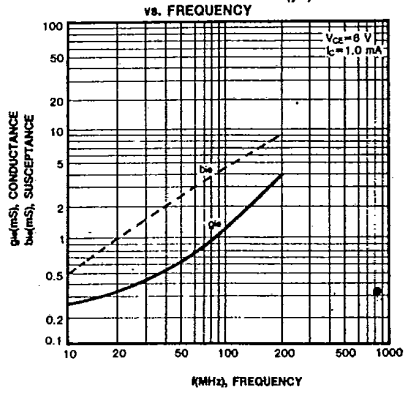
OUTPUT ADMITANCE (yoe) vs. FREQUENCY



POWER GAIN AND NOISE FIGURE vs. EMITTER CURRENT



INPUT ADMITTANCE (yie) vs. FREQUENCY



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100MHz G_{pe}, NF TEST CIRCUIT