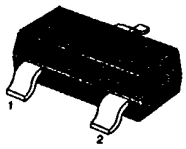
KSC2223 NPN EPITAXIAL SILICON TRANSISTOR

HIGH FREQUENCY AMPLIFIER

Very small size to assure good space factor in hybrid IC applications

- f_T=600MHz Typ. (I_E=−1mA)
- Cob=1pF Typ (V_{CB}=6V)
- NF=3dB Typ (f=100MHz)

SOT-23



1. Base 2. Emitter 3. Collector

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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	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

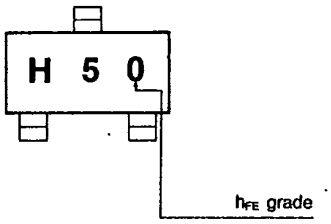
ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	V_{CB}=30V, I_E=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=6V, I_C=1mA	40	90	180	
Collector Emitter Saturation Voltage	V_{CE} (sat)	I_C=10mA, I_B=1mA		0.1	0.3	V
Output Capacitance	Cob	V_{CB}=6V, I_E=0, f=1MHz		1		pF
Current Gain Bandwidth Product	f_T	V_{CE}=6V, I_C=−1mA	400	600		MHz
Time Constant	Cc·rbb'	V_{CB}=6V, I_E=−1mA f=31.9MHz		12		ps
Noise Figure	NF	V_{CE}=6V, I_E=−1mA f=100MHz, Rs=50Ω		3		dB

h_{FE} CLASSIFICATION

Classification	R	O	Y
h_{FE}	40-80	60-120	90-180

Marking



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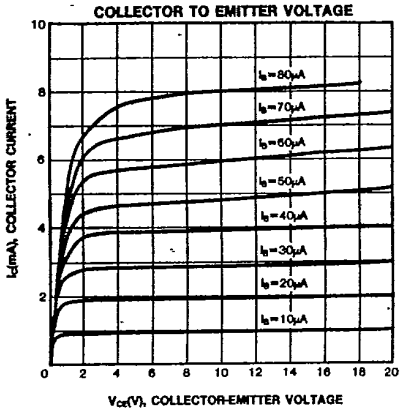
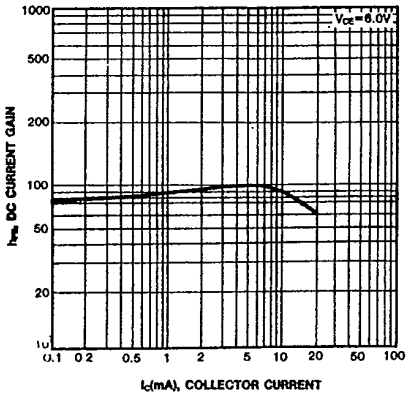
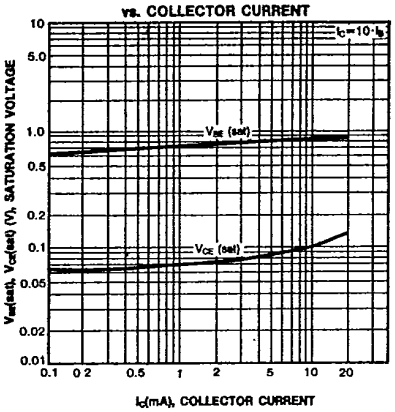
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



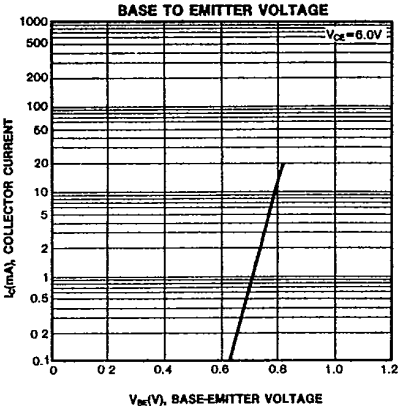
DC CURRENT GAIN vs. COLLECTOR CURRENT



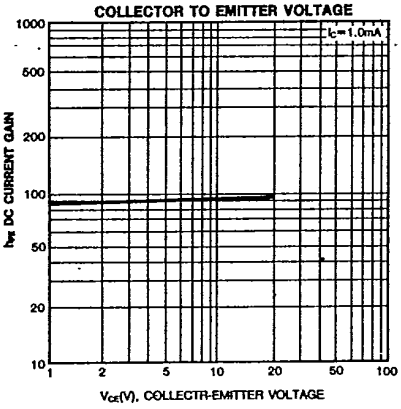
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



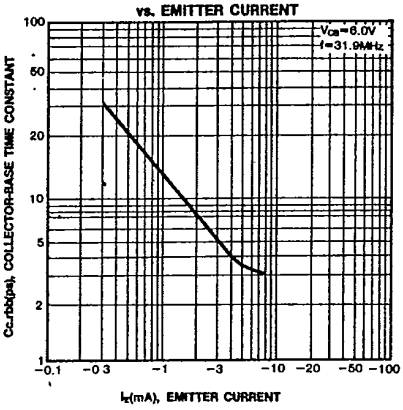
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR TO EMITTER VOLTAGE



COLLECTOR TO BASE TIME CONSTANT vs. EMITTER CURRENT



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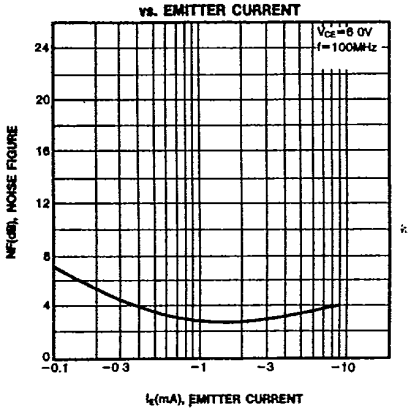
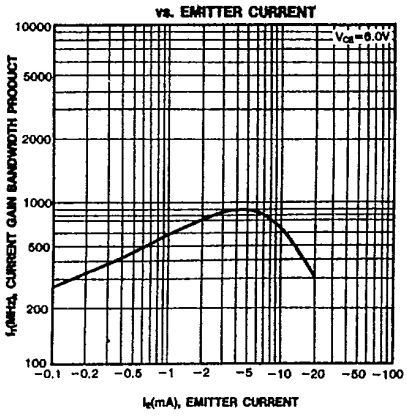
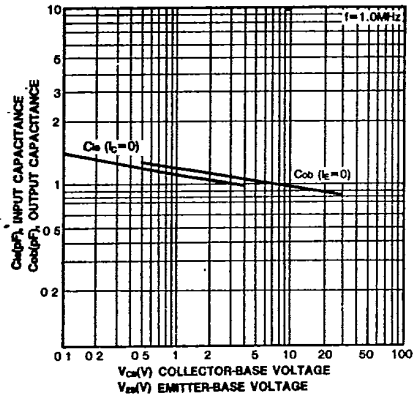
NOISE FIGURE vs. EMITTER CURRENT



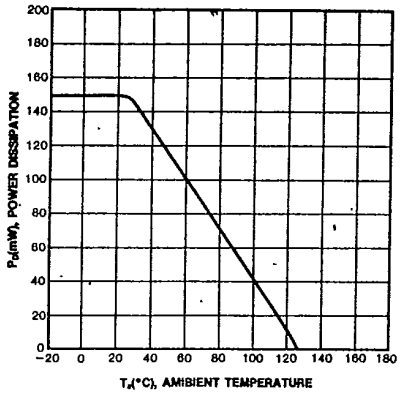
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE



POWER DERATING



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