

KSC2690/2690A**NPN EPITAXIAL SILICON TRANSISTOR**

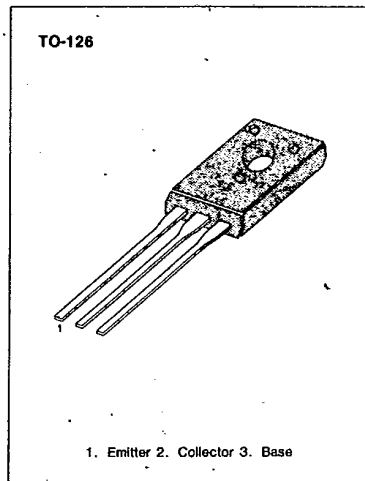
T-33-09

**AUDIO FREQUENCY, HIGH FREQUENCY
POWER AMPLIFIER**

• Complement to KSA1220/KSA1220A

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : KSC2690	V _{CB0}	120	V
: KSC2690A		160	V
Collector-Emitter Voltage : KSC2690	V _{CE0}	120	V
: KSC2690A		160	V
Emitter-Base Voltage	V _{EB0}	5	V
Collector Current (DC)	I _C	1.2	A
• Collector Current (Pulse)	I _C	2.5	A
Base Current (DC)	I _B	0.3	A
Collector Dissipation (T _a =25°C)	P _C	1.2	W
Collector Dissipation (T _c =25°C)	P _C	20	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~150	°C



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* PW≤10ms, Duty Cycle ≤50%

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I _{CB0}	V _{CB} =120V, I _E =0			1	μA
Emitter Cutoff Current	I _{EB0}	V _{EB} =3V, I _C =0			1	μA
• DC Current Gain	h _{FE1}	V _{CE} =5V, I _C =5mA	35	105		
	h _{FE2}	V _{CE} =5V, I _C =0.3A	60	140	320	
• Collector Emitter Saturation Voltage	V _{CE} (sat)	I _C =1A, I _B =0.2A		0.4	0.7	V
• Base Emitter Saturation Voltage	V _{BE} (sat)	I _C =1A, I _B =0.2A		1	1.3	V
Current Gain Bandwidth Product	f _T	V _{CE} =5V, I _C =0.2A		155		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz		19		pF

* Pulse Test: PW≤350μs, Duty Cycle≤2% Pulsed

h_{FE} (2) CLASSIFICATION

Classification	R	O	Y
h _{FE} (2)	60-120	100-200	160-320

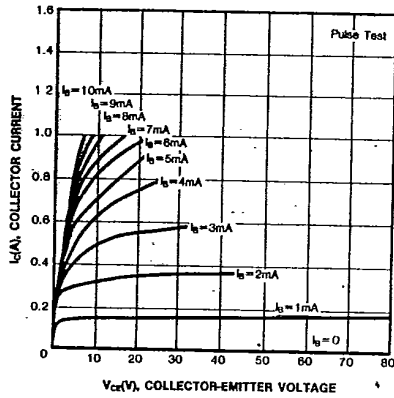


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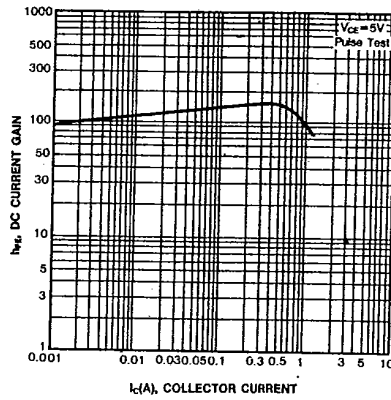
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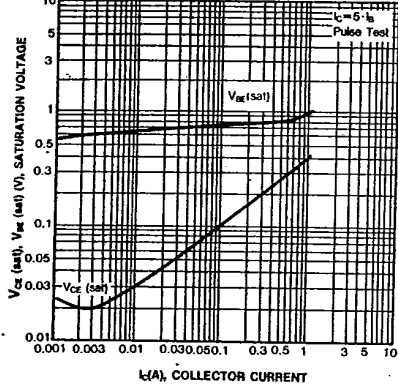
STATIC CHARACTERISTIC



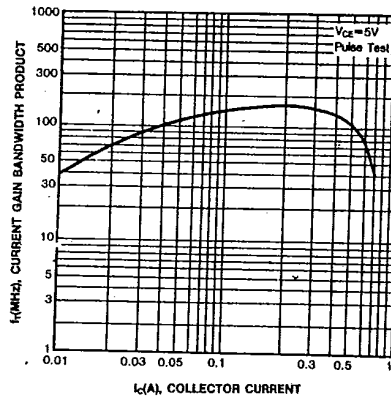
DC CURRENT GAIN



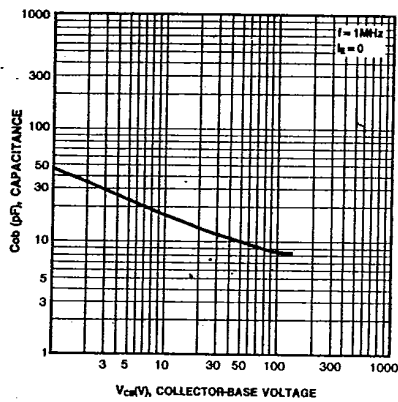
**BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE**



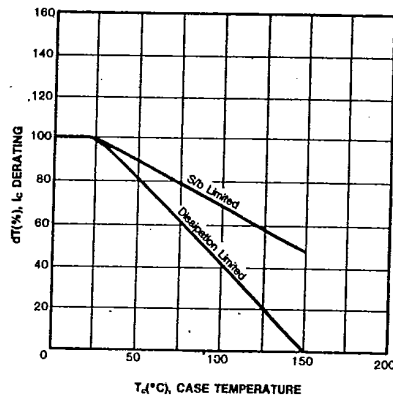
CURRENT GAIN-BANDWIDTH PRODUCT



COLLECTOR OUTPUT CAPACITANCE

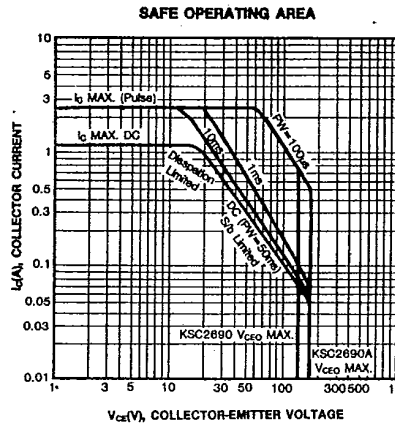
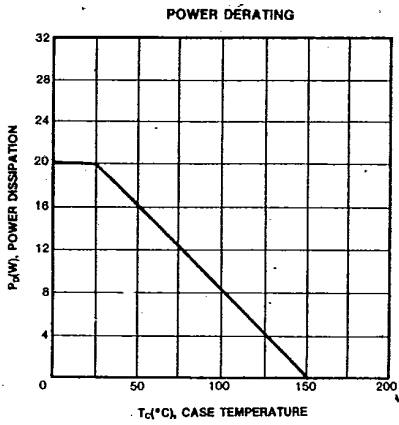


DERATING CURVE OF SAFE OPERATING AREAS



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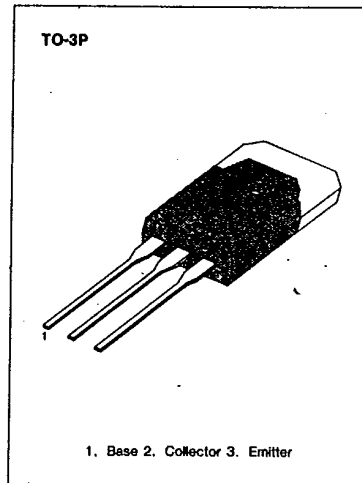
KSC2749**NPN EPITAXIAL SILICON TRANSISTOR**

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**HIGH SPEED, HIGH CURRENT SWITCHING
INDUSTRIAL USE****ABSOLUTE MAXIMUM RATINGS (T_a=25°C)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	500	V
Collector-Emitter Voltage	V _{CEO}	400	V
Emitter-Base Voltage	V _{EB0}	7	V
Collector Current (DC)	I _c	10	A
*Collector Current (Pulse)	I _c	20	A
Base Current (DC)	I _b	5	A
Collector Dissipation (T _c =25°C)	P _C	100	W
Junction Temperature	T _J	.150	°C
Storage Temperature	T _{stg}	-55~150	°C

* PW≤300μs, Duty Cycle ≤10%

**ELECTRICAL CHARACTERISTICS (T_a=25°C)**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	V _{CEO (SUS)}	I _c =6A, I _{b1} =1.2A, L=100μH	400			V
Collector Emitter Sustaining Voltage	V _{CEX (SUS)1}	I _c =6A, I _{b1} =-I _{b2} =1.2A	450			V
Collector Emitter Sustaining Voltage	V _{CEX (SUS)2}	T _a =125°C, L=180μH, Clamped I _c =12A, I _{b1} =2.4A, -I _{b2} =1.2A	400			V
Collector Cutoff Current	I _{CB0}	V _{CB} =400V, I _E =0			100	μA
Collector Cutoff Current	I _{CER}	V _{CE} =400V, R _{BE} =50Ω, T _a =125°C			2	mA
Collector Cutoff Current	I _{CEX1}	V _{CE} =400V, V _{BE (off)} =-1.5V			100	μA
Collector Cutoff Current	I _{CEX2}	V _{CE} =400V, V _{BE (off)} =-1.5V T _a =125°C			1	mA
Emitter Cutoff Current	I _{EB0}	V _{EB} =5V, I _C =0			10	μA
*DC Current Gain	h _{FE1}	V _{CE} =5V, I _C =1A	15	35	80	
	h _{FE2}	V _{CE} =5V, I _C =3A	10			
	h _{FE3}	V _{CE} =5V, I _C =6A	7			
*Collector-Emitter Saturation Voltage	V _{CE (sat)}	I _C =6A, I _B =1.2A			1	V
*Base-Emitter Saturation Voltage	V _{BE (sat)}	I _C =6A, I _B =1.2A			1.5	V
Turn On Time	t _{on}	I _C =6A, R _L =25Ω			1	μs
Storage Time	t _s	I _{b1} =-I _{b2} =1.2A, V _{CC} =150V			2.5	μs
Fall Time	t _f				0.7	μs

*Pulse Test: PW≤350μs, Duty Cycle≤2% Pulsed

h_{FE} (1) CLASSIFICATION

Classification	N	R	O	Y
h _{FE} (1)	15-30	20-40	30-60	40-80

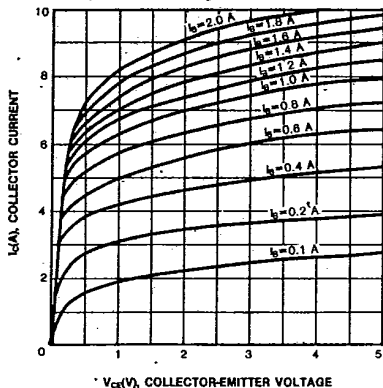


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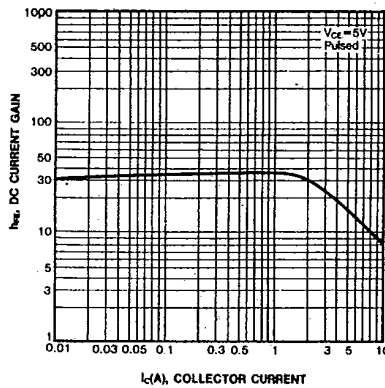
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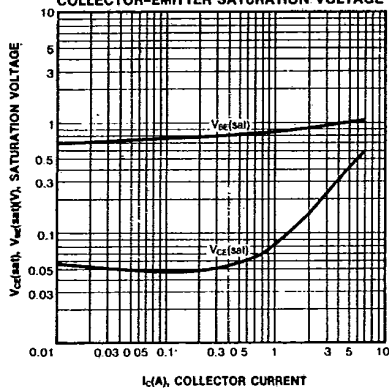
STATIC CHARACTERISTIC



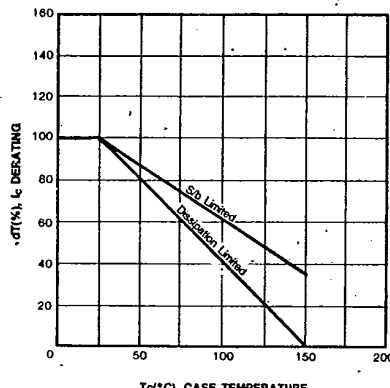
DC CURRENT GAIN



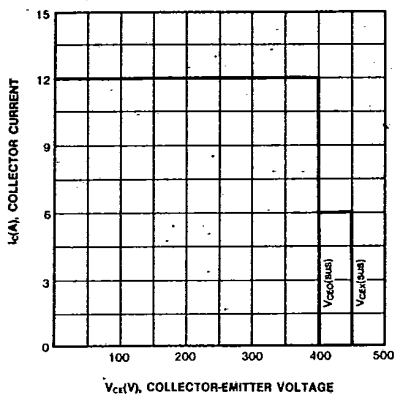
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



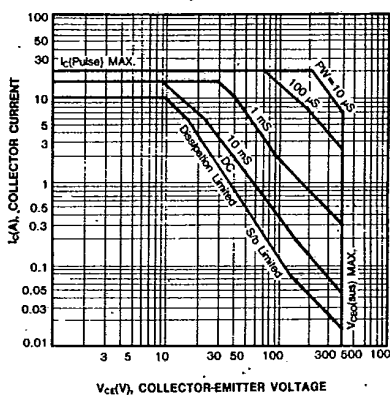
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREA



SAFE OPERATING AREA



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