

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

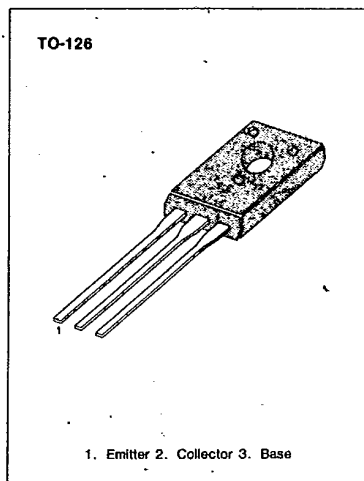
T-33-09

**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 |



3

* 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 |

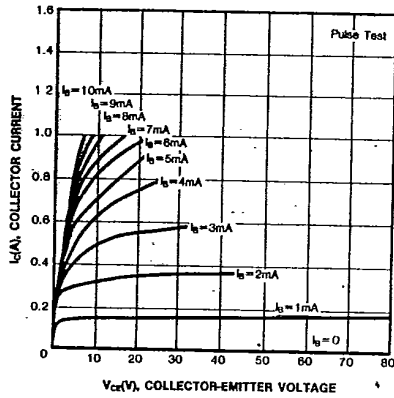


KSC2690/2690A

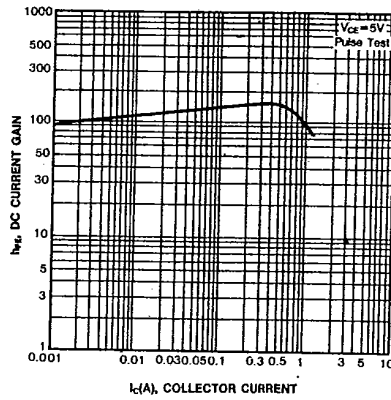
NPN EPITAXIAL SILICON TRANSISTOR

T-33-09

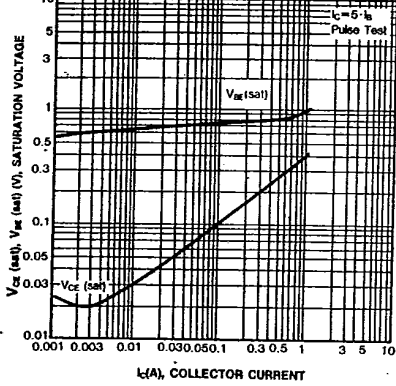
STATIC CHARACTERISTIC



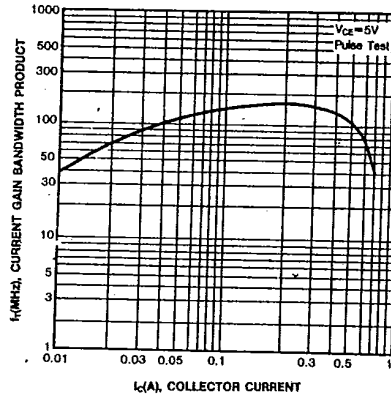
DC CURRENT GAIN



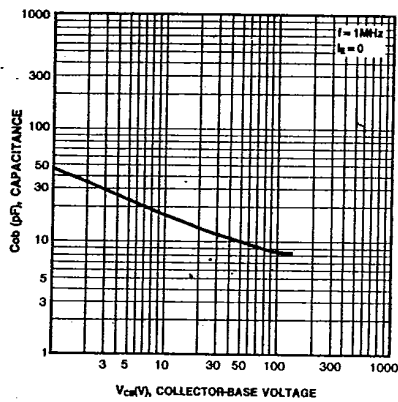
**BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE**



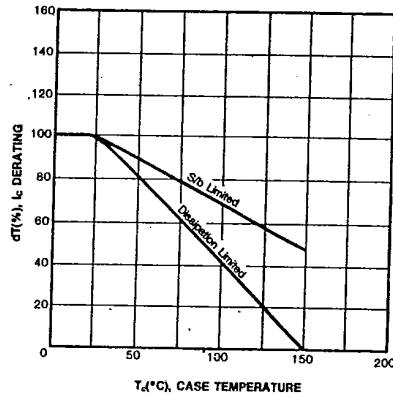
CURRENT GAIN-BANDWIDTH PRODUCT



COLLECTOR OUTPUT CAPACITANCE

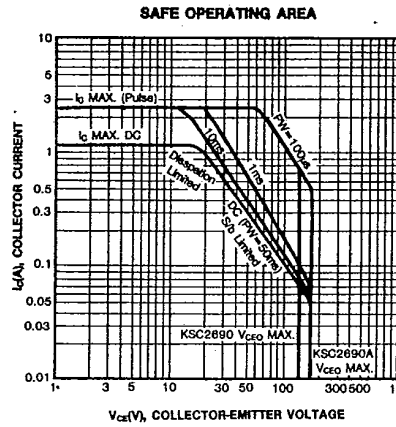
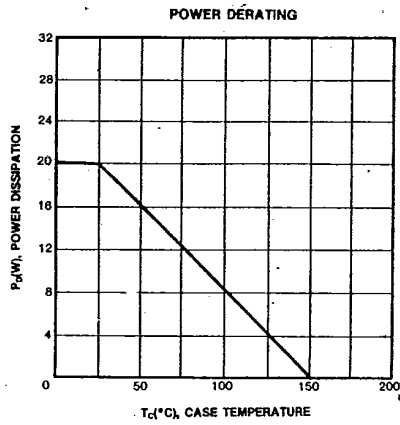


DERATING CURVE OF SAFE OPERATING AREAS



KSC2690/2690A NPN EPITAXIAL SILICON TRANSISTOR

T-33-09



3

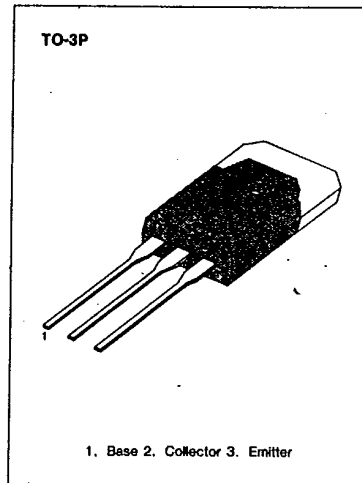
KSC2749**NPN EPITAXIAL SILICON TRANSISTOR**

T-33-13

**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 T _a =125°C, L=180μH, Clamped | 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 |

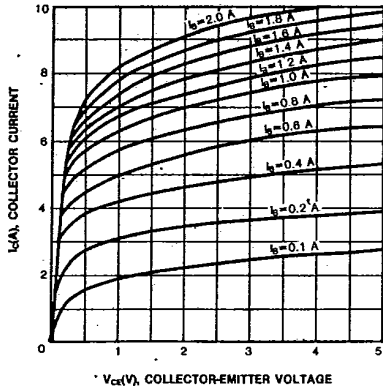


KSC2749

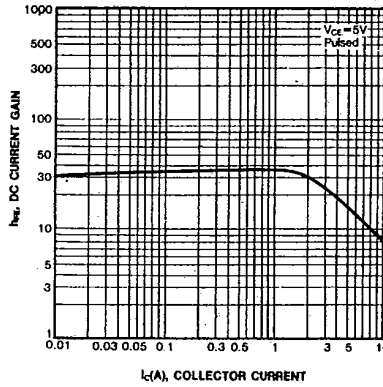
NPN EPITAXIAL SILICON TRANSISTOR

T-33-13

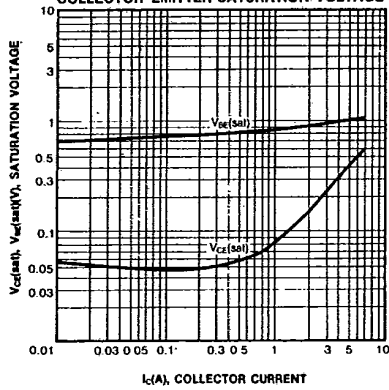
STATIC CHARACTERISTIC



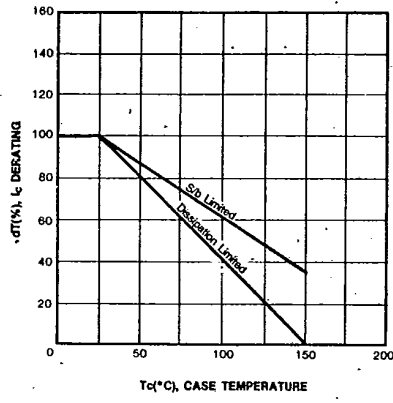
DC CURRENT GAIN



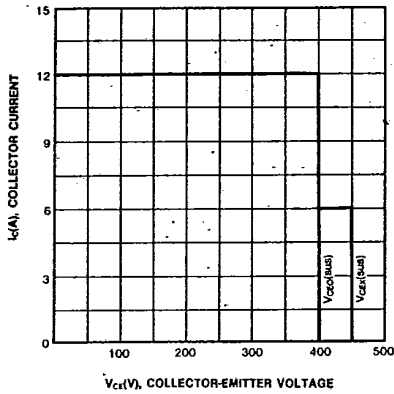
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



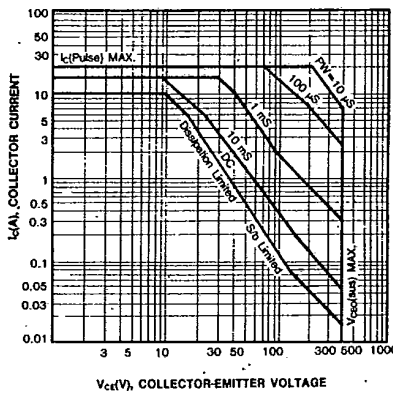
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREA



SAFE OPERATING AREA



3

KSC2749

NPN EPITAXIAL SILICON TRANSISTOR

T-33-13

