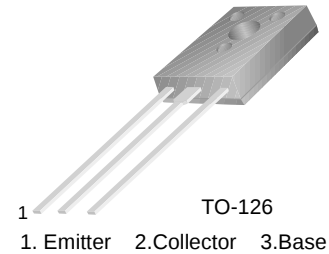


# KSC2690/2690A

## Audio Frequency High Frequency Power Amplifier

- Complement to KSA1220/KSA1220A



## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                                        | Value      | Units            |
|-----------|--------------------------------------------------|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                           | 120        | V                |
|           |                                                  | 160        | V                |
| $V_{CEO}$ | Collector- Emitter Voltage                       | 120        | V                |
|           |                                                  | 160        | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | 5          | V                |
| $I_C$     | Collector Current (DC)                           | 1.2        | A                |
| $I_{CP}$  | *Collector Current (Pulse)                       | 2.5        | A                |
| $I_B$     | Base Current(DC)                                 | 0.3        | A                |
| $P_C$     | Collector Dissipation ( $T_a=25^\circ\text{C}$ ) | 1.2        | W                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 20         | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 55 ~ 150 | $^\circ\text{C}$ |

\*  $PW \leq 10\text{ms}$ , Duty Cycles  $\leq 50\%$

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol                 | Parameter                              | Test Condition                                                                          | Min.     | Typ.       | Max. | Units         |
|------------------------|----------------------------------------|-----------------------------------------------------------------------------------------|----------|------------|------|---------------|
| $I_{CBO}$              | Collector Cut-off Current              | $V_{CB} = 120\text{V}$ , $I_E = 0$                                                      |          |            | 1    | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current                | $V_{EB} = 3\text{V}$ , $I_C = 0$                                                        |          |            | 1    | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | * DC Current Gain                      | $V_{CE} = 5\text{V}$ , $I_C = 5\text{mA}$<br>$V_{CE} = 5\text{V}$ , $I_C = 0.3\text{A}$ | 35<br>60 | 105<br>140 | 320  |               |
| $V_{CE(sat)}$          | * Collector-Emitter Saturation Voltage | $I_C = 1\text{A}$ , $I_B = 0.2\text{A}$                                                 |          | 0.4        | 0.7  | V             |
| $V_{BE(sat)}$          | * Base-Emitter Saturation Voltage      | $I_C = 1\text{A}$ , $I_B = 0.2\text{A}$                                                 |          | 1          | 1.3  | V             |
| $f_T$                  | Current Gain Bandwidth Product         | $V_{CE} = 5\text{V}$ , $I_C = 0.2\text{A}$                                              |          | 155        |      | MHz           |
| $C_{ob}$               | Output Capacitance                     | $V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$                                   |          | 19         |      | pF            |

\* Pulse Test:  $PW \leq 350\mu\text{s}$ , Duty Cycles  $\leq 2\%$  Pulsed

### $h_{FE}$ Classification

| Classification | R        | O         | Y         |
|----------------|----------|-----------|-----------|
| $h_{FE2}$      | 60 ~ 120 | 100 ~ 200 | 160 ~ 320 |

## Typical Characteristics

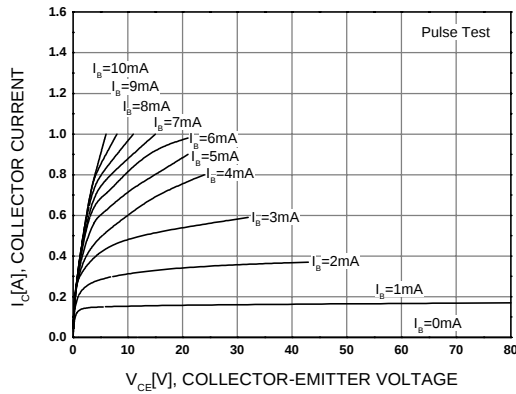


Figure 1. Static Characteristic

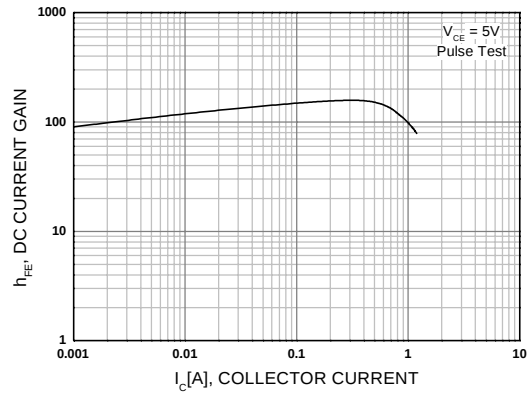


Figure 2. DC current Gain

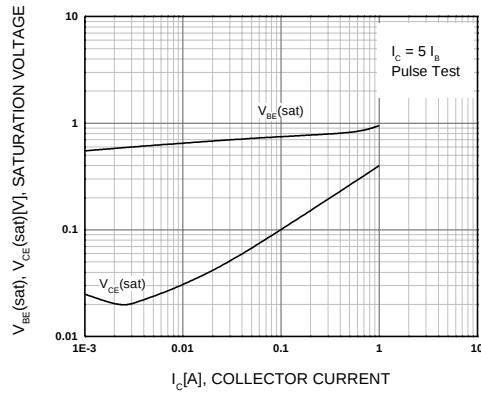


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

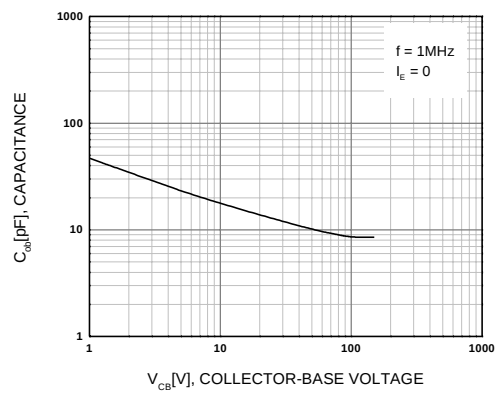


Figure 4. Collector Output Capacitance

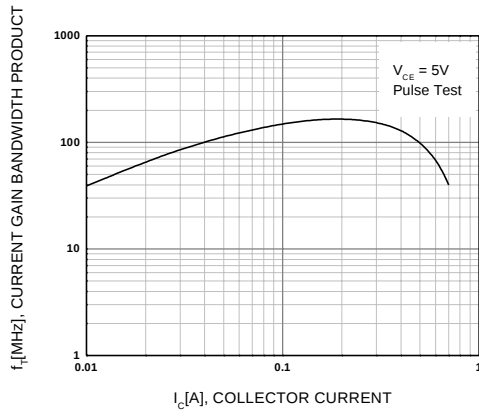


Figure 5. Current Gain Bandwidth Product

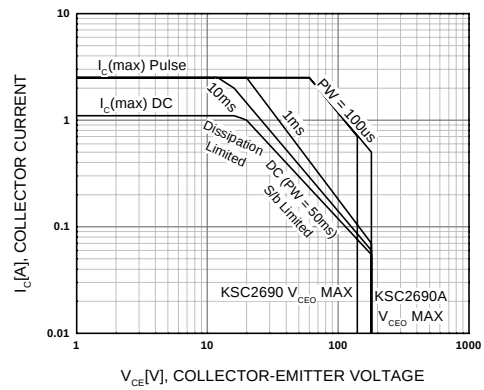


Figure 6. Safe Operating Area

## Typical Characteristics (Continued)

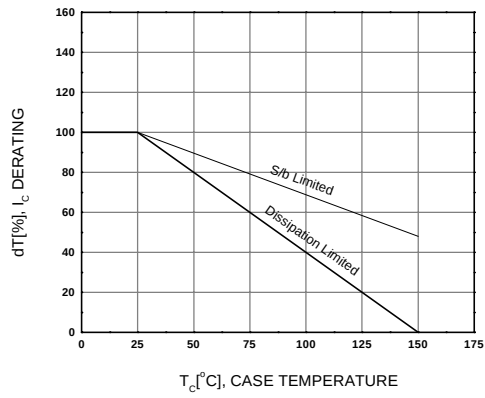


Figure 7. Derating Curve of Safe Operating Areas

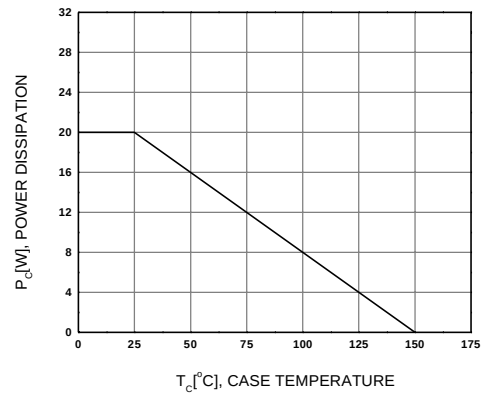
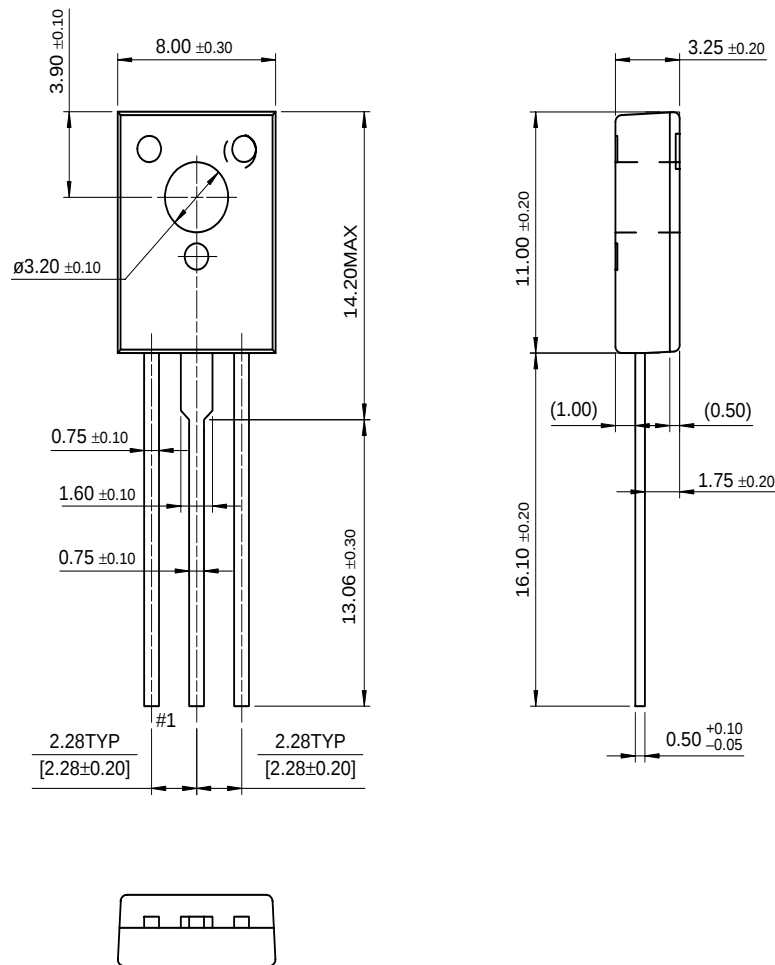


Figure 8. Power Derating

# Package Dimensions

KSC2690/2690A

## TO-126



Dimensions in Millimeters

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