



Micro Commercial Components  
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## KSD1616 KSD1616A

### Features

- Audio frequency power amplifier & medium speed switching
- Complement to KSB1116/1116A

### Maximum Ratings

| Symbol    | Rating                                           | Rating      | Unit |
|-----------|--------------------------------------------------|-------------|------|
| $V_{CEO}$ | Collector-Emitter Voltage<br>KSD1616<br>KSD1616A | 50<br>60    | V    |
| $V_{CBO}$ | Collector-Base Voltage<br>KSD1616<br>KSD1616A    | 60<br>120   | V    |
| $V_{EBO}$ | Emitter-Base Voltage                             | 6.0         | V    |
| $I_C$     | Collector Current (DC)                           | 1.0         | A    |
| $I_{CP}$  | Collector Current (Pulse) <sup>(1)</sup>         | 2.0         | A    |
| $P_C$     | Collector power dissipation                      | 0.75        | W    |
| $T_J$     | Junction Temperature                             | -55 to +150 | °C   |
| $T_{STG}$ | Storage Temperature                              | -55 to +150 | °C   |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Typ | Max | Units |
|--------|-----------|-----|-----|-----|-------|
|--------|-----------|-----|-----|-----|-------|

#### OFF CHARACTERISTICS

|           |                                                                 |     |     |     |      |
|-----------|-----------------------------------------------------------------|-----|-----|-----|------|
| $I_{CBO}$ | Collector Cutoff Current<br>( $V_{CB}=60V_{dc}$ , $I_E=0$ )     | --- | --- | 100 | nAdc |
| $I_{EBO}$ | Emitter-Base Cutoff Current<br>( $V_{EB}=6.0V_{dc}$ , $I_C=0$ ) | --- | --- | 100 | uAdc |

#### ON CHARACTERISTICS

|               |                                                                                    |                                                                                     |            |            |      |    |
|---------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|------------|------|----|
| $h_{FE-1}$    | DC Current Gain<br>( $I_C=100mA$ , $V_{CE}=2.0V$ )<br>KSD1616<br>KSD1616A          | 135<br>135                                                                          | ---<br>--- | 600<br>400 | ---  |    |
| $h_{FE-2}$    | DC Current Gain<br>( $V_{CE}=2.0V$ , $I_C=1.0A$ )                                  | 81                                                                                  | ---        | ---        | ---  |    |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage <sup>(2)</sup><br>( $I_C=1.0A$ , $I_E=50mA$ ) | ---                                                                                 | 0.15       | 0.3        | Vdc  |    |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage <sup>(2)</sup><br>( $I_C=1.5A$ , $I_E=75mA$ )      | ---                                                                                 | 0.9        | 0.2        | Vdc  |    |
| $V_{BE(ON)}$  | Base-Emitter On Voltage <sup>(2)</sup><br>( $V_{CE}=2.0V$ , $I_C=50mA$ )           | 600                                                                                 | 640        | 700        | mVdc |    |
| $f_T$         | Current Gain Bandwidth Product<br>( $I_C=100mA$ , $V_{CE}=2.0V$ )                  | 100                                                                                 | 160        | ---        | MHz  |    |
| $C_{ob}$      | Collector Output Capacitance<br>( $V_{CE}=10V$ , $I_E=0$ , $f=1.0MHz$ )            | ---                                                                                 | 19         | ---        | pF   |    |
| $T_{ON}$      | Turn On Time                                                                       | $V_{CC}=10V$ ,<br>$I_C=100mA$ ,<br>$I_{B1}=I_{B2}=10mA$ ,<br>$V_{BE(off)}=2\sim 3V$ | ---        | 0.07       | ---  | us |
| $t_{STG}$     | Storage Time                                                                       |                                                                                     | ---        | 0.95       | ---  | us |
| $T_F$         | Fall Time                                                                          |                                                                                     | ---        | 0.07       | ---  | us |

#### $h_{FE(1)}$ Classification

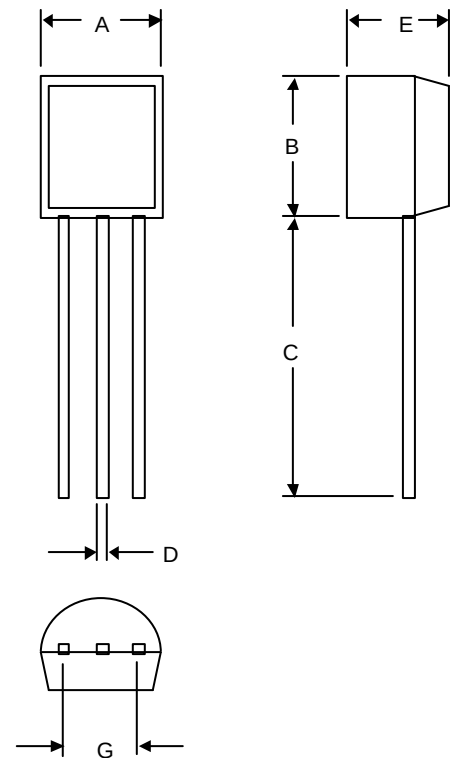
| Classification | Y       | G       | L       |
|----------------|---------|---------|---------|
| $h_{FE-1}$     | 135-270 | 200-400 | 300-600 |

(1) PW<10ms, Duty Cycle<50%

(2) (2) Pulse Test: PW<350us, Duty Cycle<2% Pulsed

### NPN Silicon Epitaxial Transistors

#### TO-92



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .175   | .185 | 4.45 | 4.70 |      |
| B          | .175   | .185 | 4.46 | 4.70 |      |
| C          | .500   | ---  | 12.7 | ---  |      |
| D          | .016   | .020 | 0.41 | 0.63 |      |
| E          | .135   | .145 | 3.43 | 3.68 |      |
| G          | .095   | .105 | 2.42 | 2.67 |      |