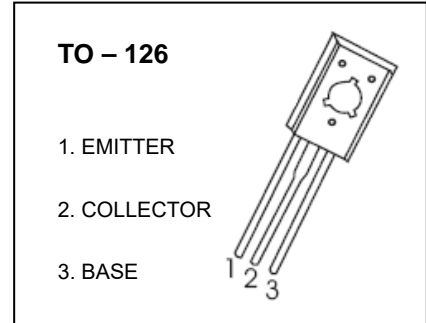


TO-126 Plastic-Encapsulate Transistors

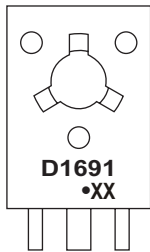
KSD1691 TRANSISTOR (NPN)

FEATURES

- Low Collector-Emitter Saturation Voltage & Large Collector Current
- High Power Dissipation: $P_C = 1.3W$ ($T_a=25^\circ C$)

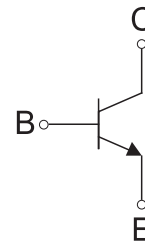


MARKING



D1691=Device code
Solid dot= Green molding compound device, if none, the normal device
XX=Code

Equivalent Circuit



ORDERING INFORMATION

| Part Number | Package | Packing Method | Pack Quantity |
|-------------|---------|----------------|---------------|
| KSD1691 | TO-126 | Bulk | 200pcs/Bag |
| KSD1691-TU | TO-126 | Tube | 60pcs/Tube |

MAXIMUM RATINGS ($T_a=25^\circ C$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|----------------|----------------------------------------------------|---------|------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current (DC) | 5 | A |
| P_C | Collector Power Dissipation ($T_a = 25^\circ C$) | 1.3 | W |
| | Collector Power Dissipation ($T_c = 25^\circ C$) | 20 | W |
| T_J, T_{stg} | Operation Junction and Storage Temperature Range | -55-150 | $^\circ C$ |

ELECTRICAL CHARACTERISTICS

$T_a=25^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--------------------------------------------------------------------------------------|-----|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$ | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 60 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$ | 7 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=50\text{V}, I_E=0$ | | | 10 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=7\text{V}, I_C=0$ | | | 10 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=1\text{V}, I_C=2\text{A}$ | 100 | | 400 | |
| | $h_{FE(2)}$ | $V_{CE}=1\text{V}, I_C=0.1\text{A}$ | 60 | | | |
| | $h_{FE(3)}$ | $V_{CE}=1\text{V}, I_C=5\text{A}$ | 50 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=2\text{A}, I_B=0.2\text{A}$ | | | 0.3 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=2\text{A}, I_B=0.2\text{A}$ | | | 1.2 | V |
| Turn ON Time | t_{on} | $V_{CC} = 10\text{V}, I_C = 2\text{A},$ $I_{B1}=-I_{B2}=0.2\text{A}, R_L=5\Omega$ | | | 1 | μS |
| Storage Time | t_{stg} | | | | 2.5 | μS |
| Fall Time | t_f | | | | 1 | μS |
| Transition frequency | f_T | $V_{CE}=5\text{V}, I_C=1\text{A}$ | 10 | | | MHz |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | O | Y | G |
|-------|---------|---------|---------|
| Range | 100-200 | 160-320 | 200-400 |

TO-126 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 2.500 | 2.900 | 0.098 | 0.114 |
| A1 | 1.100 | 1.500 | 0.043 | 0.059 |
| b | 0.660 | 0.860 | 0.026 | 0.034 |
| b1 | 1.170 | 1.370 | 0.046 | 0.054 |
| c | 0.450 | 0.600 | 0.018 | 0.024 |
| D | 7.400 | 7.800 | 0.291 | 0.307 |
| E | 10.600 | 11.000 | 0.417 | 0.433 |
| e | 2.290 TYP | | 0.090 TYP | |
| e1 | 4.480 | 4.680 | 0.176 | 0.184 |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| L | 15.300 | 15.700 | 0.602 | 0.618 |
| L1 | 2.100 | 2.300 | 0.083 | 0.091 |
| P | 3.900 | 4.100 | 0.154 | 0.161 |
| Φ | 3.000 | 3.200 | 0.118 | 0.126 |

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