**Solid State Devices, Inc.**
14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

# SFT6036 series

## DESIGNER'S DATA SHEET

## 4 AMP
## PNP Darlington Power Transistor
## 80 Volts

**Part Number / Ordering Information**[1/]

**SFT6036**

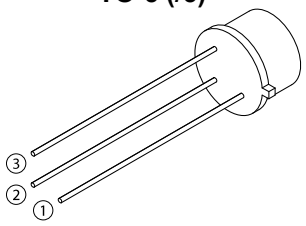
**Screening**[2/]
- __ = Not Screened
- TX = TX Level
- TXV = TXV Level
- S = S Level

**Package**
- /5 = TO-5
- M = TO-254
- J = TO-257
- S.3 = SMD.3
- S.5 = SMD.5

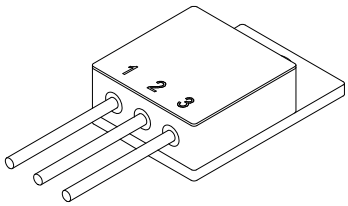
**Features:**
- $BV_{CEO}$ to 80 Volts
- Low saturation voltage
- Very low leakage
- 200°C operating temperature
- Gold eutectic die attach
- Complement for SFT6039
- Available with TO-5, TO-254, TO-257, SMD.3 and SMD.5 Cases
- TX, TXV, and S Level Screening Available[2/]

| Maximum Ratings[3/] | | Symbol | Values | Units |
|---|---|---|---|---|
| **Collector – Emitter Voltage** | | $V_{CEO}$ | 80 | **Volts** |
| **Collector – Base Voltage** | | $V_{CBO}$ | 80 | **Volts** |
| **Emitter – Base Voltage** | | $V_{EBO}$ | 5 | **Volts** |
| **Collector Current** | | $I_{C\ cont}$<br>$I_{C\ pk}$ | 4<br>8 | **Amps** |
| **Base Current** | | $I_B$ | 0.1 | **Amps** |
| **Total Power Dissipation @ $T_C$ = 100ºC** | TO-5<br>TO-254<br>TO-257<br>SMD.3<br>SMD.5 | $P_D$ | -<br>20<br>20<br>28.5<br>31 | **Watts** |
| **Operating & Storage Temperature** | | $T_J$ & $T_{STG}$ | -65 to 200 | **ºC** |
| **Thermal Resistance** (Junction to Case) | TO-5<br>TO-254<br>TO-257<br>SMD.3<br>SMD.5 | $R_{\theta JA}$<br>$R_{\theta JC}$<br>$R_{\theta JC}$<br>$R_{\theta JC}$<br>$R_{\theta JC}$ | 175<br>5<br>5<br>3.5<br>3.2 | **ºC/W** |

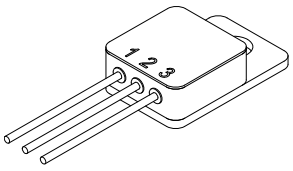
**TO-5 (/5)**



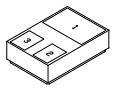

**TO-254 (M)**



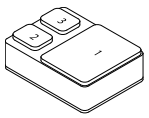

**TO-257 (J)**




**SMD.3 (S.3)**



**SMD.5 (S.5)**



**NOTES:**
1/ For ordering information, price, operating curves, and availability - contact factory.
2/ Screening based on MIL-PRF-19500. Screening flows available on request.
3/ Unless otherwise specified, maximum ratings/electrical characteristics at 25°C.

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| Electrical Characteristics[3/] | | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **Collector – Emitter Breakdown Voltage*** | $I_C$ = 100 mA | $BV_{CEO}$ | 80 | 95 | - | Volts |
| **Collector – Emitter Cutoff Current,** | $V_{CE}$ = 80V, $I_B$ = 0 | $I_{CEO}$ | - | 0.05 | 100 | uA |
| **Collector – Emitter Cutoff Current** | $V_{CE}$ = 80V, $V_{BE\ (off)}$= 1.5V<br>$V_{CE}$ = 80V, $V_{BE\ (off)}$= 1.5V, $T_C$= 125ºC | $I_{CEX}$ | -<br>- | 0.05<br>12.5 | 100<br>500 | uA |
| **Collector Cutoff Current** | $V_{CB}$ = 80V | $I_{CBO}$ | - | 0.05 | 500 | uA |
| **Emitter Cutoff Current** | ($V_{BE}$ = 5V) | $I_{EBO}$ | | 0.65 | 2 | mA |
| **DC Current Gain*** | ($I_C$ = 0.5A, $V_{CE}$ = 3V)<br>($I_C$ = 2A, $V_{CE}$ = 3V)<br>($I_C$ = 4A, $V_{CE}$ = 3V) | $H_{FE}$ | 500<br>750<br>100 | 4,000<br>3,800<br>900 | -<br>15,000<br>- | |
| **Collector-Emitter Saturation Voltage*** | $I_C$ = 2A, $I_B$ = 8mA<br>$I_C$ = 4A, $I_B$ = 40mA | $V_{CE\ (SAT)1}$<br>$V_{CE\ (SAT)2}$ | -<br>- | 1.1<br>1.6 | 2<br>3 | V |
| **Base-Emitter Saturation Voltage*** | $I_C$ = 4A, $I_B$ = 40mA | $V_{BE\ (SAT)2}$ | - | 2.25 | 4 | V |
| **Base-Emitter Voltage** | $I_C$ = 2A, $V_{CE}$ = 3V | $V_{BE\ (ON)}$ | - | 1.65 | 2.8 | V |
| **Small Signal Current Gain** | $I_C$ = 0.75A, $V_{CE}$ = 10V, f = 1MHz | $h_{fe}$ | 25 | 1400 | - | |
| **Output Capacitance** | $V_{CB}$ = 15V, $I_E$ = 0A, f = 2.0MHz | $C_{ob}$ | - | 40 | 200 | pF |

| Electrical Characteristics[3/] | | Symbol | Typical | Units |
|---|---|---|---|---|
| **Delay Time** | $V_{CC}$= -30V | $t_d$ | 45 | ns |
| **Rise Time** | $I_C$= 4A | $t_r$ | 200 | ns |
| **Storage Time** | $I_{B1}$ = $I_{B2}$ = 16mA | $t_s$ | 600 | ns |
| **Fall Time** | | $t_f$ | 450 | ns |

**Notes:** * Pulse Test: Pulse Width = 300 µs. Duty Cycle = 2%.

1/ For ordering information, price, operating curves, and availability - contact factory.

2/ Screening based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, maximum ratings/electrical characteristics at 25°C.

**PIN ASSIGNMENT (Standard)**

| Package | Collector | Emitter | Base |
|---|---|---|---|
| **TO-5 (/5)** | 3 | 1 | 2 |
| **TO-254(M)** | 1 | 2 | 3 |
| **TO-257(J)** | 1 | 2 | 3 |
| **SMD.3 (S.3)** | 1 | 2 | 3 |
| **SMD.5 (S.5)** | 1 | 2 | 3 |

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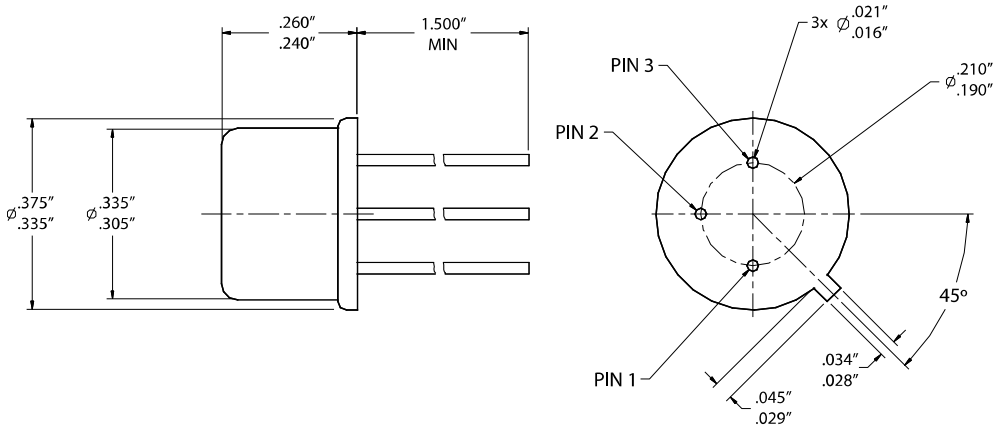
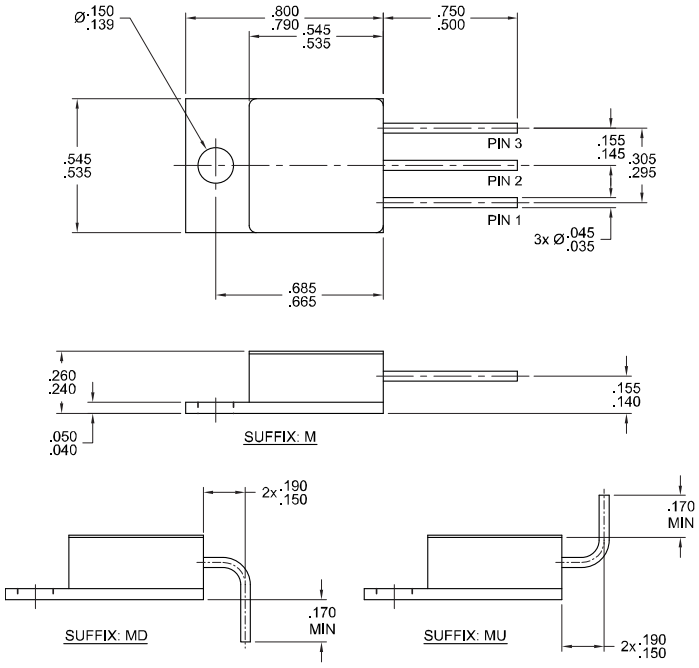
## CASE OUTLINES

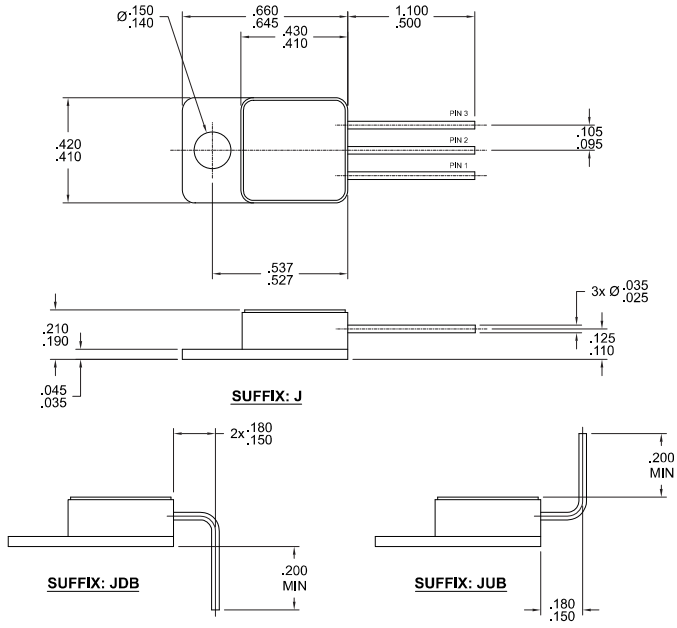
**TO-5 (/5):**




**TO-254 (M):**




**TO-257 (J):**




| | | |
|---|---|---|
| **NOTE:** All specifications are subject to change without notification.<br>SCD's for these devices should be reviewed by SSDI prior to release. | **DATA SHEET #: TR0120A** | **DOC** |

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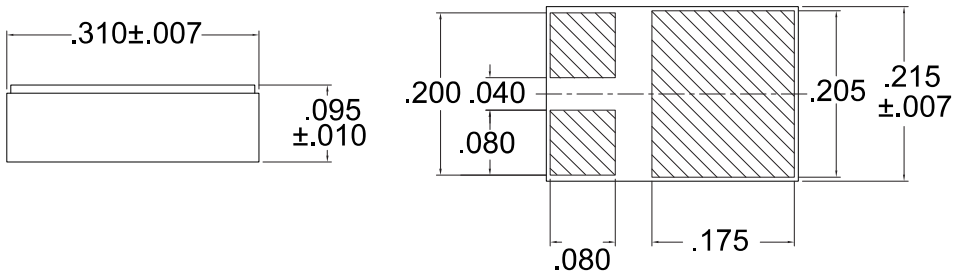
## CASE OUTLINES

**SMD.3 (S.3):**




**SMD.5 (S.5):**