

Features

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 338°C/W Junction to Ambient

Per Device

| Parameter | Symbol | Rating | Unit |
|-------------------------|-----------|--------|------|
| Total Power Dissipation | P_{tot} | 600 | mW |

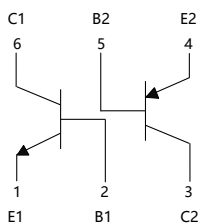
NPN Pin1,2,6

| Parameter | Symbol | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 0.5 | A |
| Peak Collector Current | I_{CM} | 1 | A |
| Peak Base Current | I_{BM} | 200 | mA |
| Power Dissipation | P_C | 370 | mW |

PNP Pin3,4,5

| Parameter | Symbol | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | -50 | V |
| Collector-Emitter Voltage | V_{CEO} | -45 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Collector Current | I_C | -0.5 | A |
| Peak Collector Current | I_{CM} | -1 | A |
| Peak Base Current | I_{BM} | -200 | mA |
| Power Dissipation | P_C | 370 | mW |

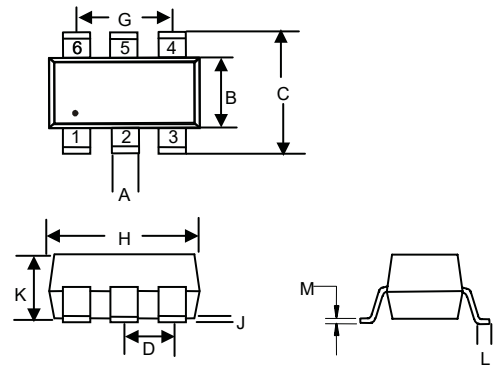
Internal Structure



Marking: 8017

NPN/PNP General Purpose Transistors

SOT23-6L



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|------|------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.012 | 0.020 | 0.30 | 0.50 | |
| B | 0.051 | 0.070 | 1.30 | 1.80 | |
| C | 0.087 | 0.126 | 2.20 | 3.20 | |
| D | 0.037 | | 0.95 | | TYP. |
| G | 0.074 | | 1.90 | | TYP. |
| H | 0.106 | 0.122 | 2.70 | 3.10 | |
| J | 0.002 | 0.006 | 0.05 | 0.15 | |
| K | 0.030 | 0.051 | 0.75 | 1.30 | |
| L | 0.012 | 0.024 | 0.30 | 0.60 | |
| M | 0.003 | 0.008 | 0.08 | 0.22 | |

NPN Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|---|---------------|-----|-----|-----|---------|--------------------------------------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | | | V | $I_C=10\mu A, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 45 | | | V | $I_C=10mA, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E=1\mu A, I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | 100 | nA | $V_{CB}=20V, I_E=0$ |
| | | | | 5 | μA | $V_{CB}=20V, I_E=0, T_J=150^\circ C$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 100 | nA | $V_{EB}=5V, I_C=0$ |
| DC Current Gain ^(Note1) | $h_{FE(1)}$ | 160 | | 400 | | $V_{CE}=1V, I_C=100mA$ |
| | $h_{FE(2)}$ | 40 | | | | $V_{CE}=1V, I_C=500mA$ |
| Collector-Emitter Saturation Voltage ^(Note1) | $V_{CE(sat)}$ | | | 0.7 | V | $I_C=500mA, I_B=50mA$ |
| Base-Emitter Voltage ^{(Note1)(Note2)} | V_{BE} | | | 1.2 | V | $V_{CE}=1V, I_C=500mA$ |
| Collector Capacitance | C_c | | 5 | | pF | $V_{CB}=10V, I_E=I_e=0, f=1MHz$ |
| Transition Frequency | f_T | 100 | | | MHz | $V_{CE}=5V, I_C=10mA, f=100MHz$ |

PNP Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|---|---------------|-----|-----|------|---------|---------------------------------------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -50 | | | V | $I_C=-10\mu A, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -45 | | | V | $I_C=-10mA, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | | | V | $I_E=-1\mu A, I_C=0$ |
| Collector-Base Cutoff Current | I_{CBO} | | | -100 | nA | $V_{CB}=-20V, I_E=0$ |
| | | | | -5 | μA | $V_{CB}=-20V, I_E=0, T_J=150^\circ C$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | -100 | nA | $V_{EB}=-5V, I_C=0$ |
| DC Current Gain ^(Note1) | $h_{FE(1)}$ | 160 | | 400 | | $V_{CE}=1V, I_C=-100mA$ |
| | $h_{FE(2)}$ | 40 | | | | $V_{CE}=-1V, I_C=-500mA$ |
| Collector-Emitter Saturation Voltage ^(Note1) | $V_{CE(sat)}$ | | | -0.7 | V | $I_C=-500mA, I_B=-50mA$ |
| Base-Emitter Voltage ^{(Note1)(Note2)} | V_{BE} | | | -1.2 | V | $V_{CE}=-1V, I_C=-500mA$ |
| Collector Capacitance | C_c | | 9 | | pF | $V_{CB}=-10V, I_E=I_e=0, f=1MHz$ |
| Transition Frequency | f_T | 80 | | | MHz | $V_{CE}=-5V, I_C=-10mA, f=100MHz$ |

Notes: 1. Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

2. V_{BE} Decreases By Approximately $-2mV/^\circ C$ With Increasing Temperature.

Curve Characteristics (NPN Transistor)

Fig. 1 - Static Characteristics

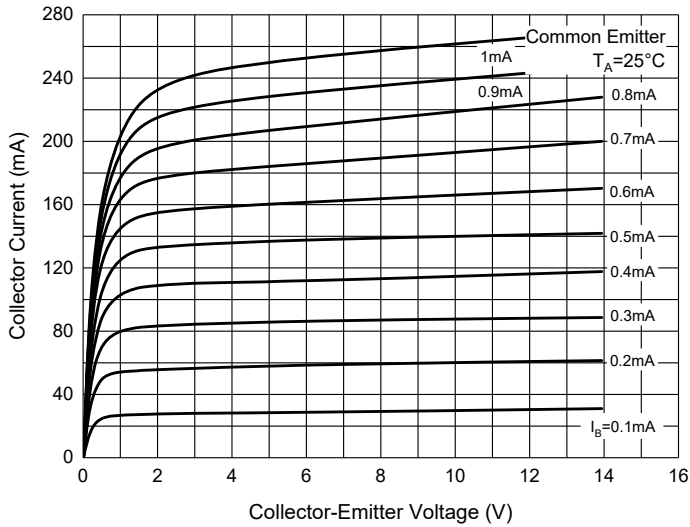


Fig. 2 - DC Current Gain Characteristics

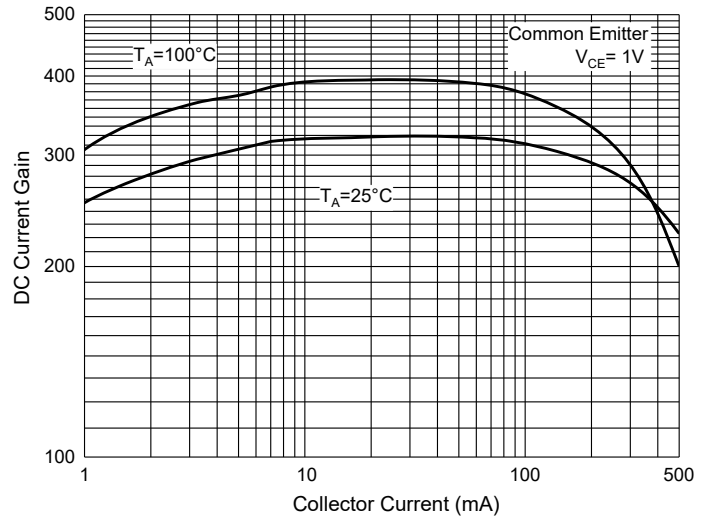


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

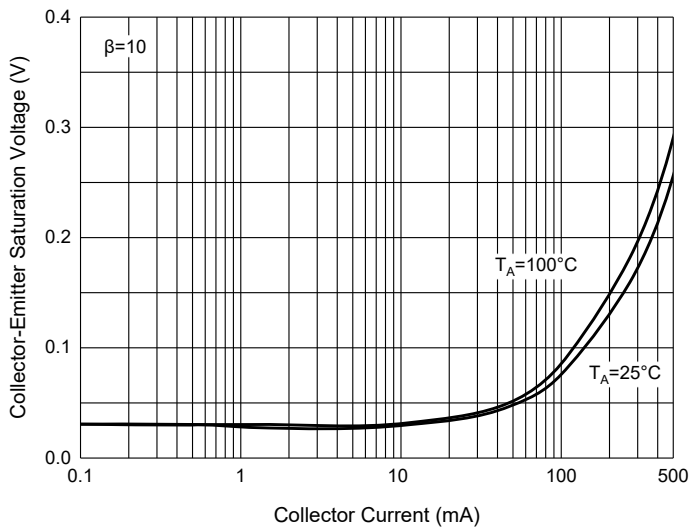


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

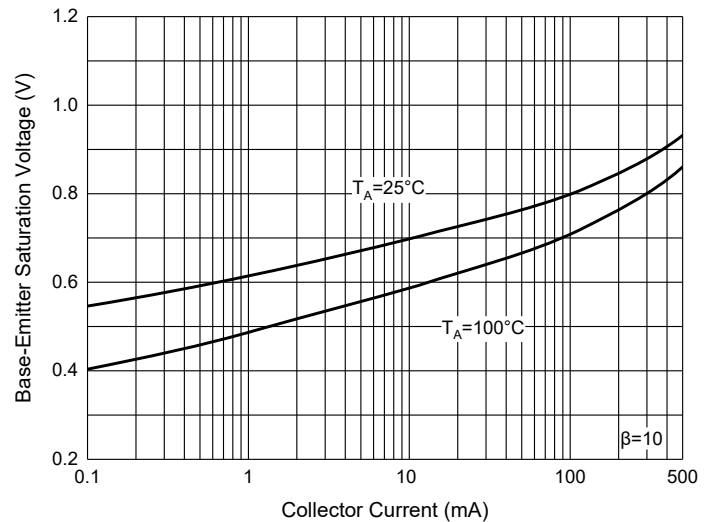


Fig. 5 - Base-Emitter Voltage Characteristics

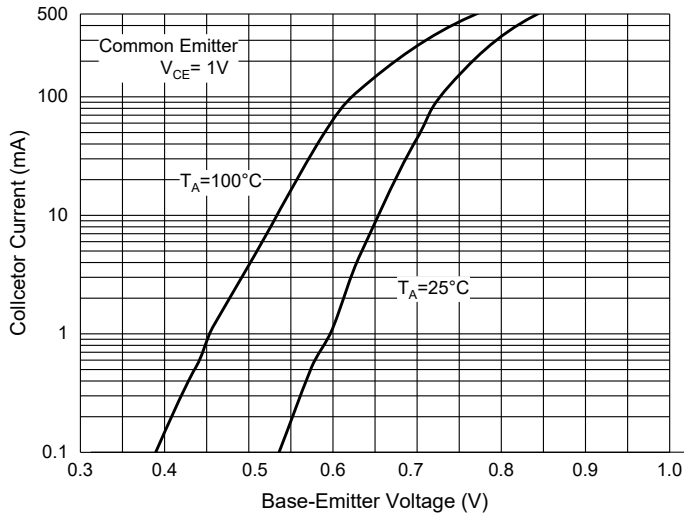
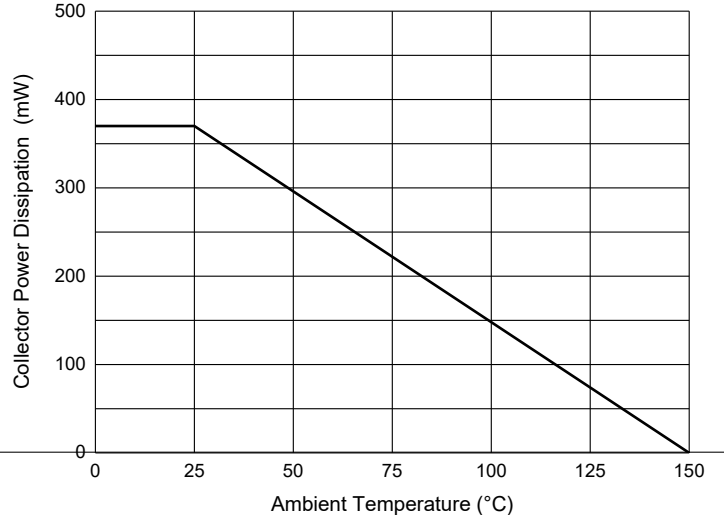


Fig. 6 - Collector Power Derating Curve



Curve Characteristics (PNP Transistor)

Fig. 7 - Static Characteristics

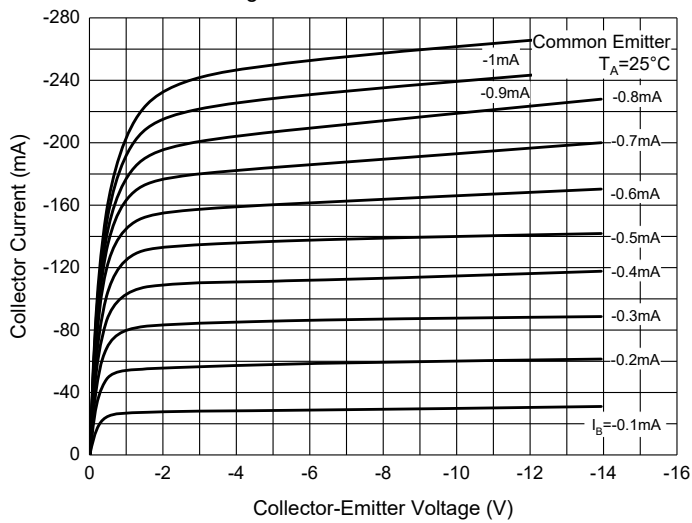


Fig. 8 - DC Current Gain Characteristics

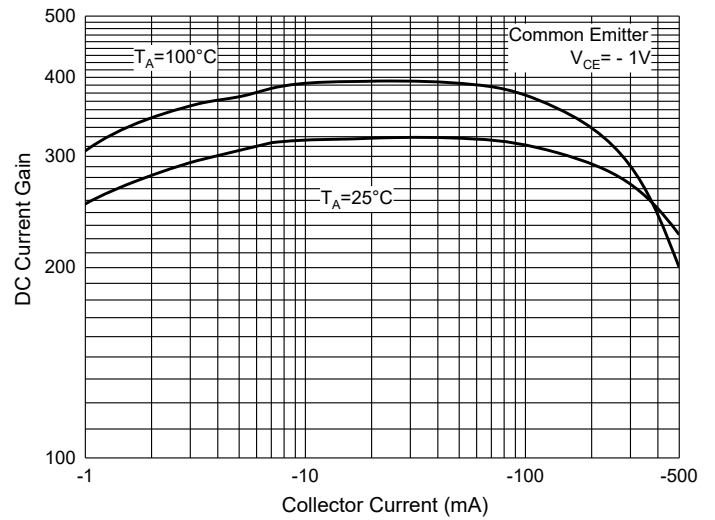


Fig. 9 - Collector-Emitter Saturation Voltage Characteristics

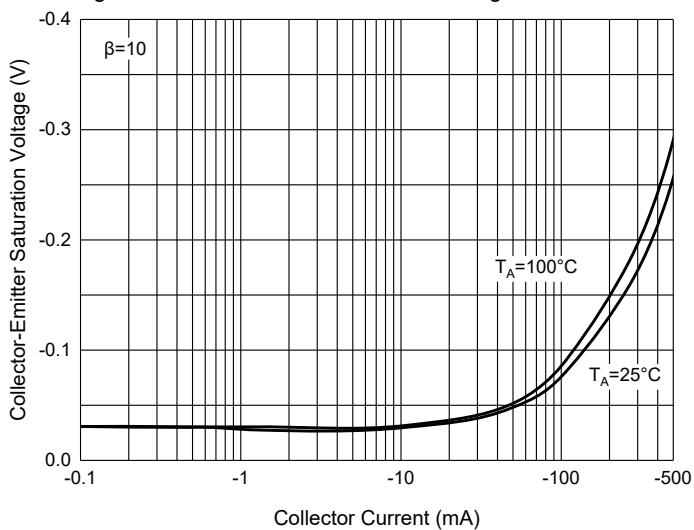


Fig. 10 - Base-Emitter Saturation Voltage Characteristics

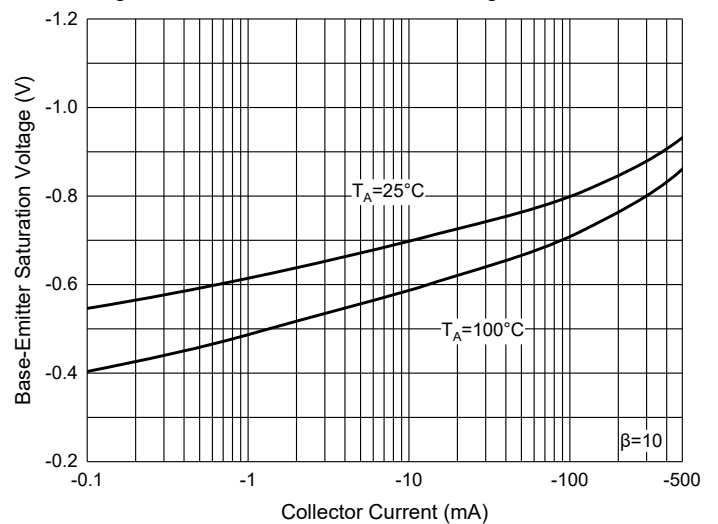


Fig. 11 - Base-Emitter Voltage Characteristics

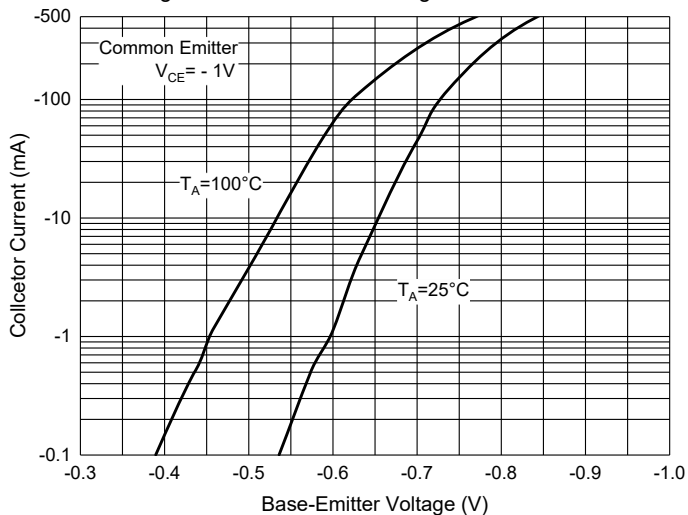
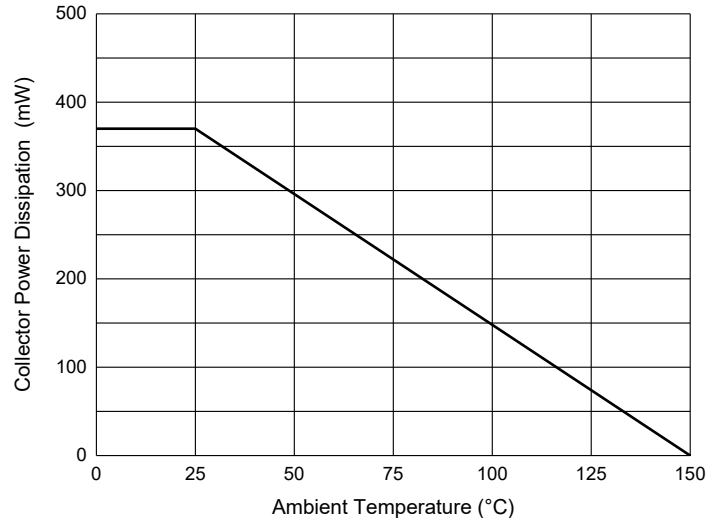


Fig. 12 - Collector Power Derating Curve



Ordering Information

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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