

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

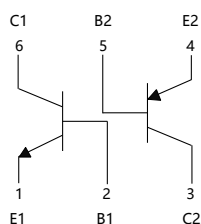
NPN Pin1,2,6

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

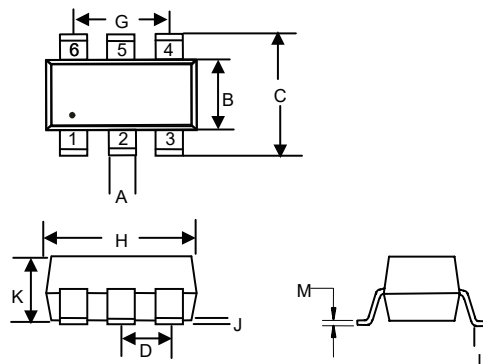
Internal Structure



Marking: 8017

NPN/PNP General Purpose Transistors

SOT23-6L



DIMENSIONS

DIM	INCHES		MM		NOTE
	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

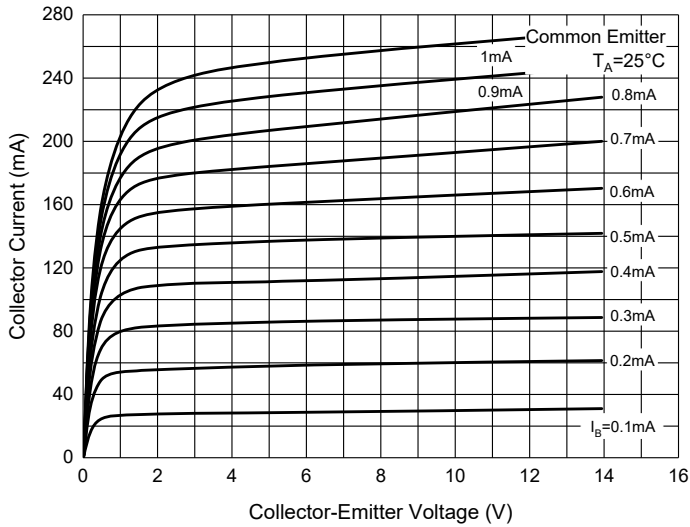


Fig. 2 - DC Current Gain Characteristics

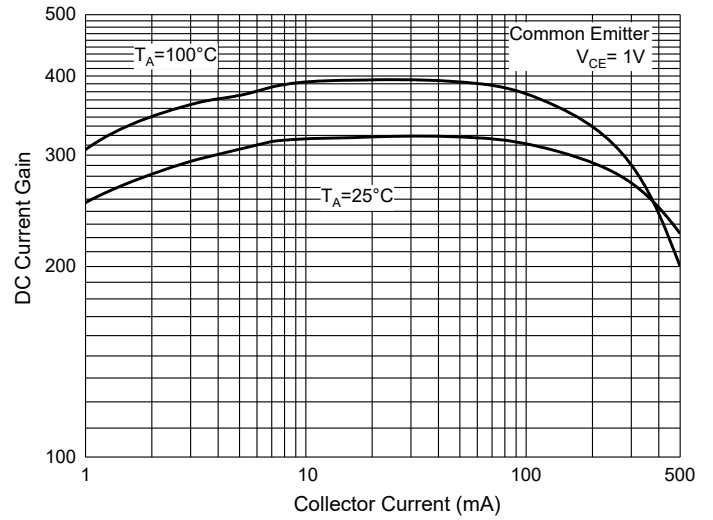


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

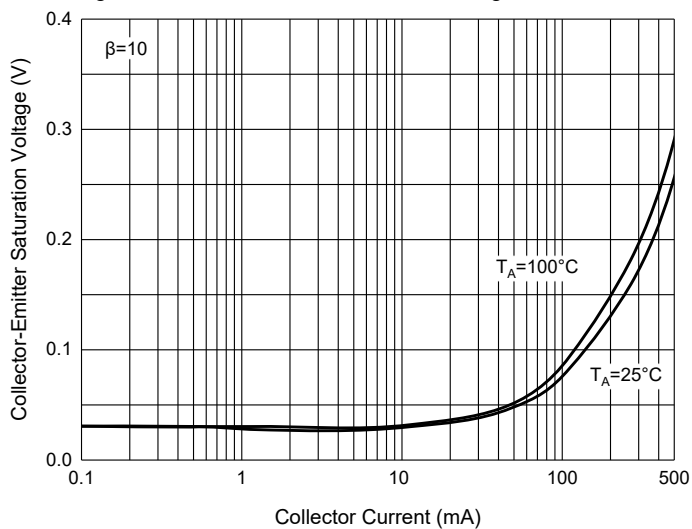


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

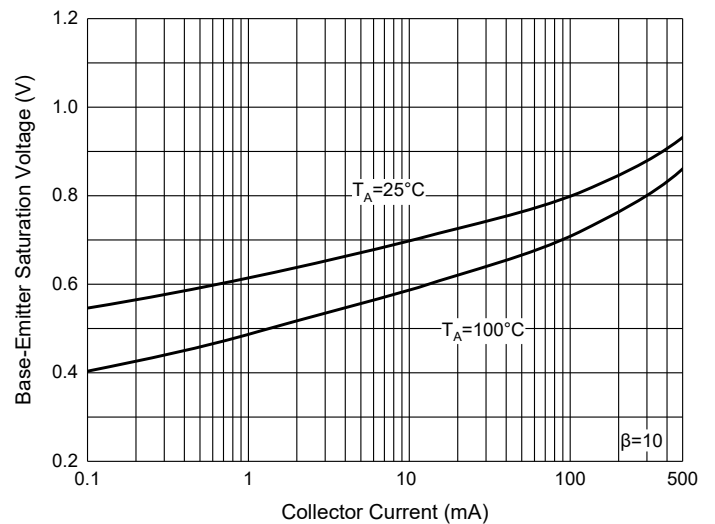


Fig. 5 - Base-Emitter Voltage Characteristics

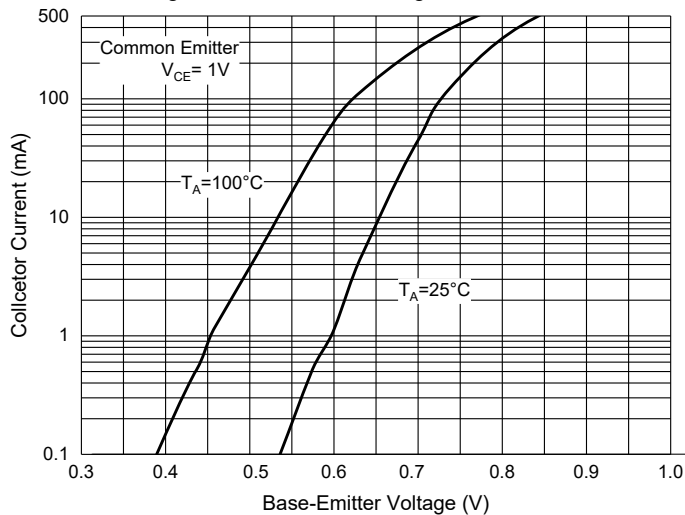
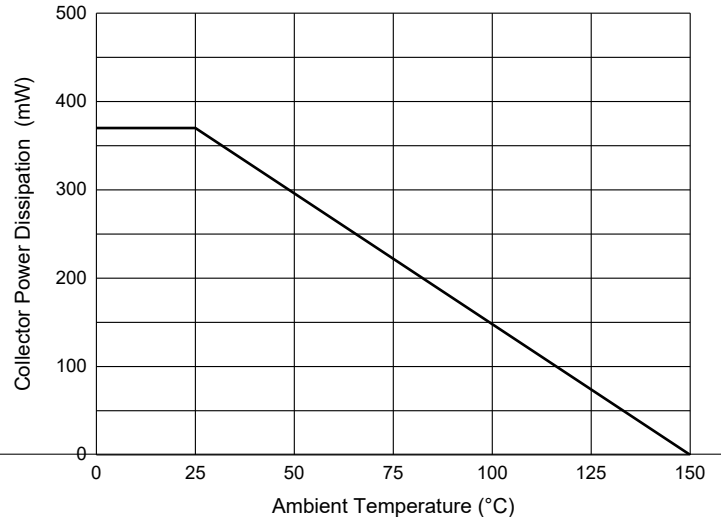


Fig. 6 - Collector Power Derating Curve



Curve Characteristics (PNP Transistor)

Fig. 7 - Static Characteristics

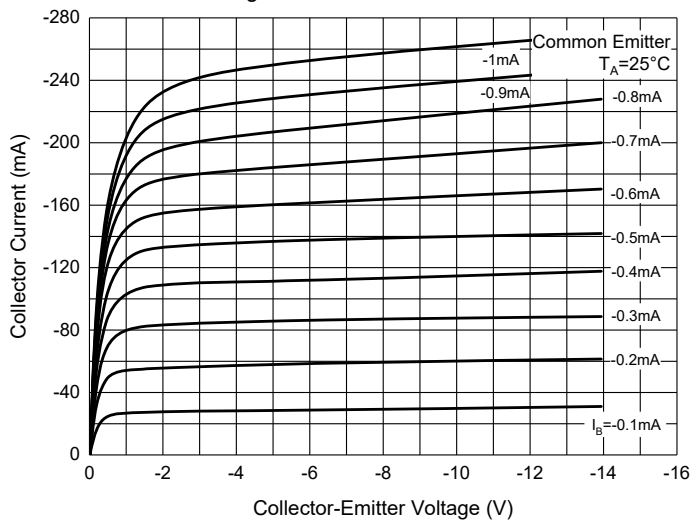


Fig. 8 - DC Current Gain Characteristics

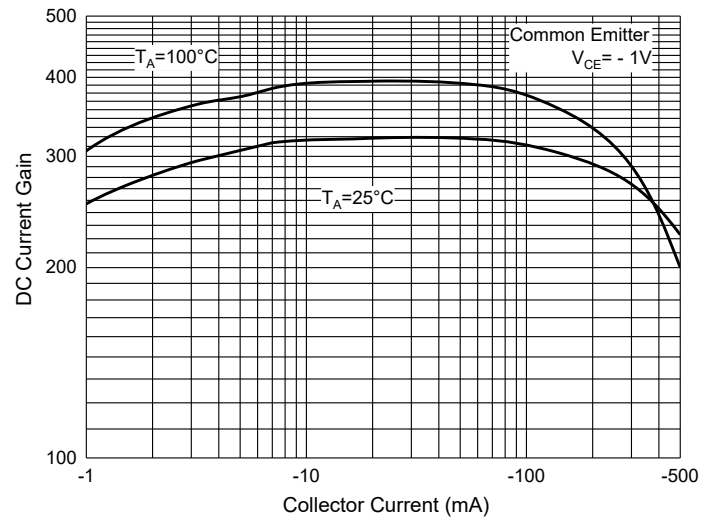


Fig. 9 - Collector-Emitter Saturation Voltage Characteristics

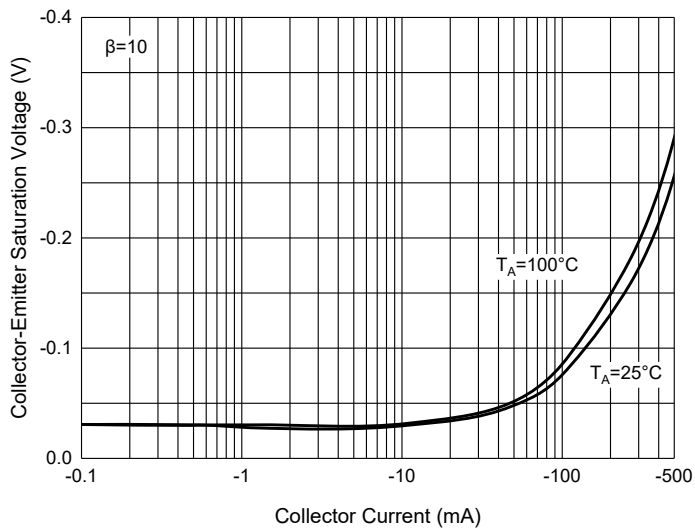


Fig. 10 - Base-Emitter Saturation Voltage Characteristics

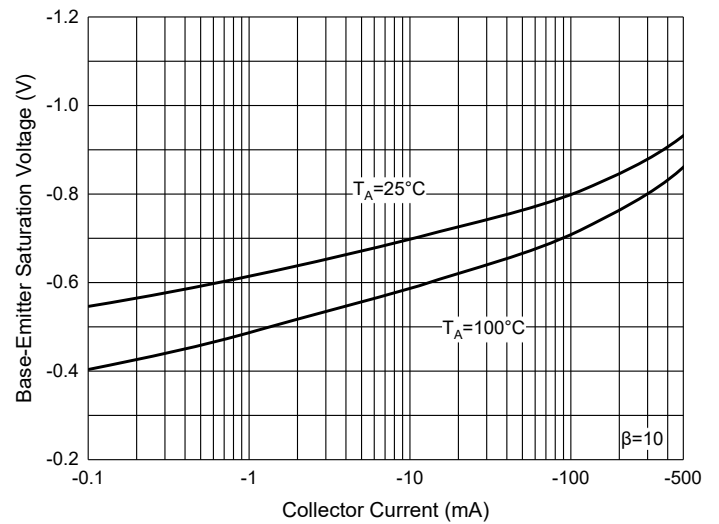


Fig. 11 - Base-Emitter Voltage Characteristics

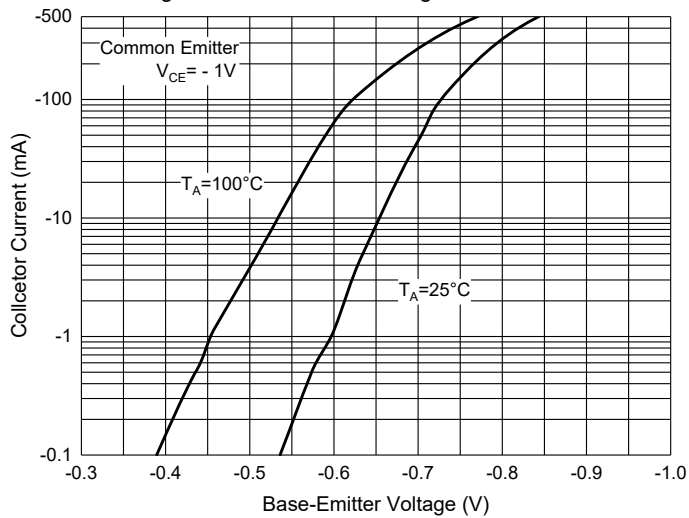
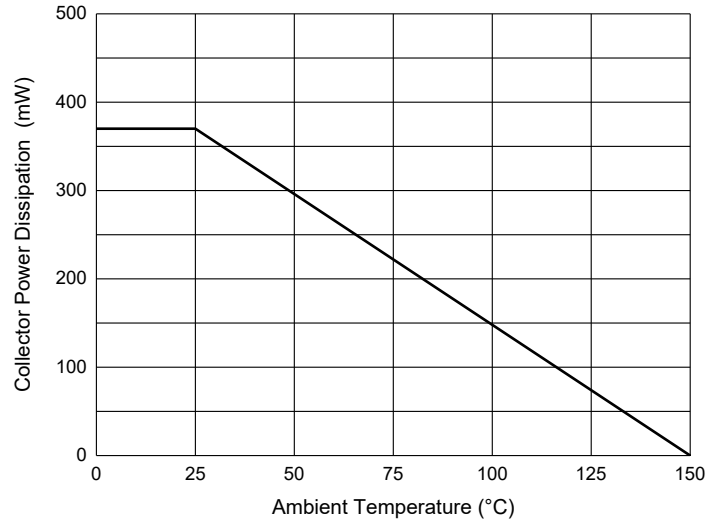


Fig. 12 - Collector Power Derating Curve



Ordering Information

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

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