

Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- Halogen Free. "Green" Device (Note 1)
- 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: 417°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	60	V
		80	
Collector-Emitter Voltage	V_{CEO}	60	V
		80	
Emitter-Base Voltage	V_{EBO}	4	V
Continuous Collector Current	I_C	500	mA
Power Dissipation	P_D	300	mW

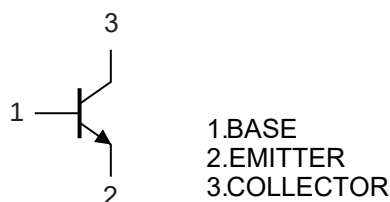
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Marking:

MMBTA05: 1H

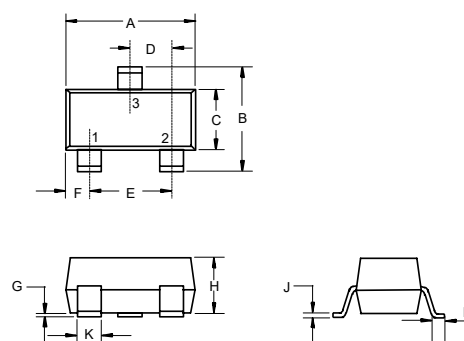
MMBTA06: 1GM

Internal Structure



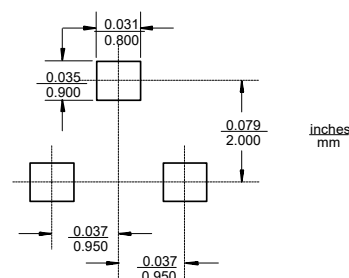
NPN Small Signal General Purpose Amplifier Transistors

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

Parameter		Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	MMBTA05	$V_{(BR)CBO}$	60			V	$I_C=100\mu\text{A}, I_E=0$
	MMBTA06		80			V	
Collector-Emitter Breakdown Voltage	MMBTA05	$V_{(BR)CEO}$	60			V	$I_C=1\text{mA}, I_B=0$
	MMBTA06		80				
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	4			V	$I_E=100\mu\text{A}, I_C=0$
Collector Cutoff Current	MMBTA05	I_{CBO}			0.1	μA	$V_{CB}=60\text{V}, I_E=0$
	MMBTA06				0.1	μA	$V_{CB}=80\text{V}, I_E=0$
Collector Cutoff Current		I_{CEO}			1	μA	$V_{CE}=60\text{V}, I_B=0$
Emitter Cutoff Current		I_{EBO}			0.1	mA	$V_{EB}=3\text{V}, I_C=0$
DC Current Gain		$h_{FE(1)}$	100		400		$V_{CE}=1\text{V}, I_C=10\text{mA}$
		$h_{FE(2)}$	100				$V_{CE}=1\text{V}, I_C=100\text{mA}$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			0.25	V	$I_C=100\text{mA}, I_B=10\text{mA}$
Base-Emitter Saturation Voltage		$V_{BE(sat)}$			1.2	V	$I_C=100\text{mA}, I_B=10\text{mA}$
Transition Frequency		f_T	100			MHz	$V_{CE}=2\text{V}, I_C=10\text{mA}, f=100\text{MHz}$

Curve Characteristics

Fig. 1 - Static Characteristics

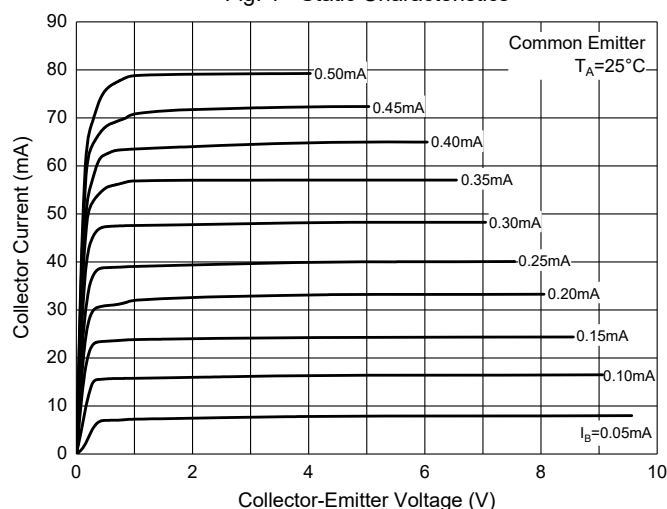


Fig. 2 - DC Current Gain Characteristics

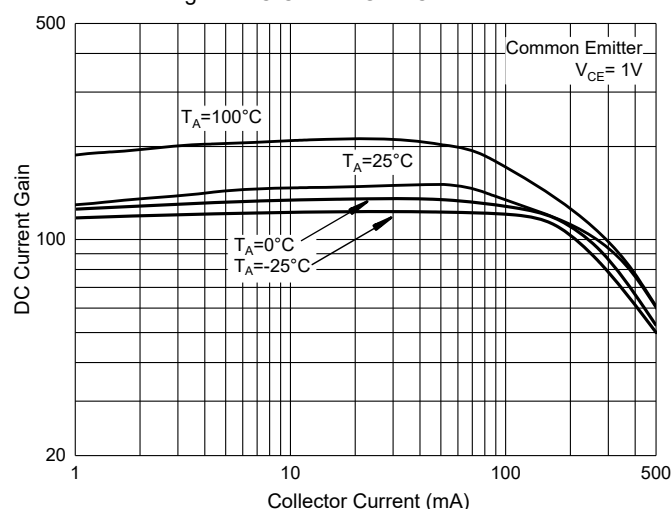


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

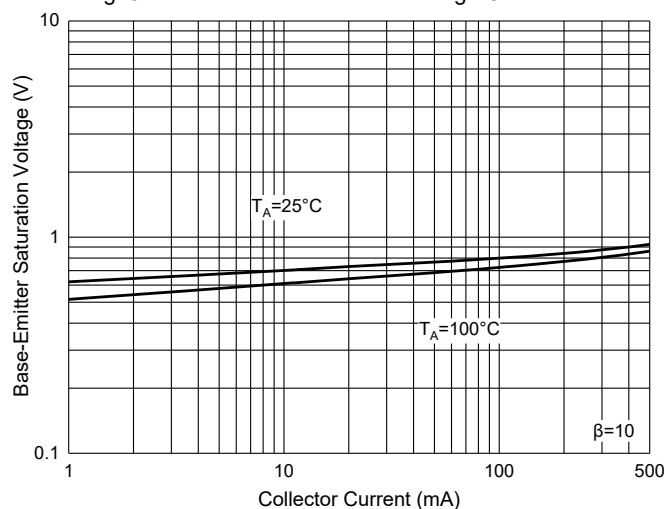


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

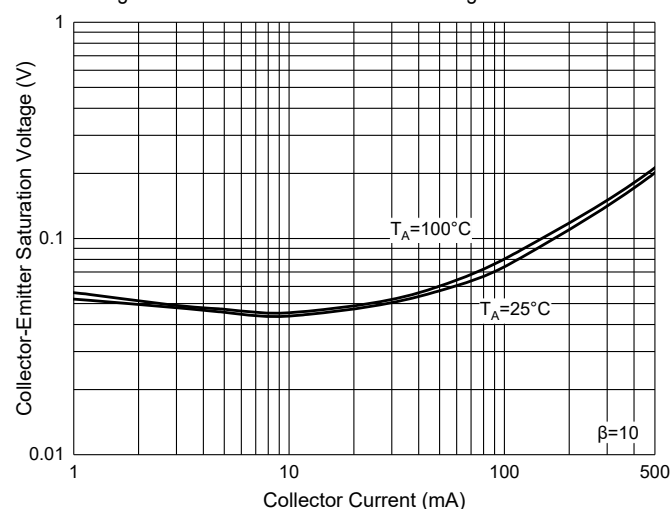


Fig. 5 - Base-Emitter Voltage Characteristics

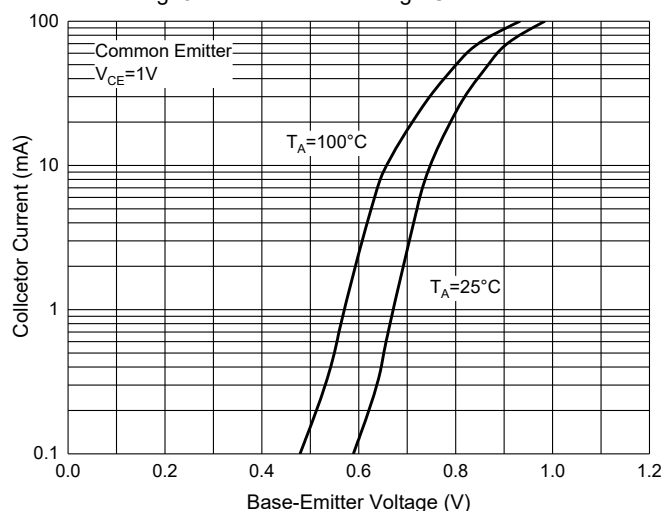
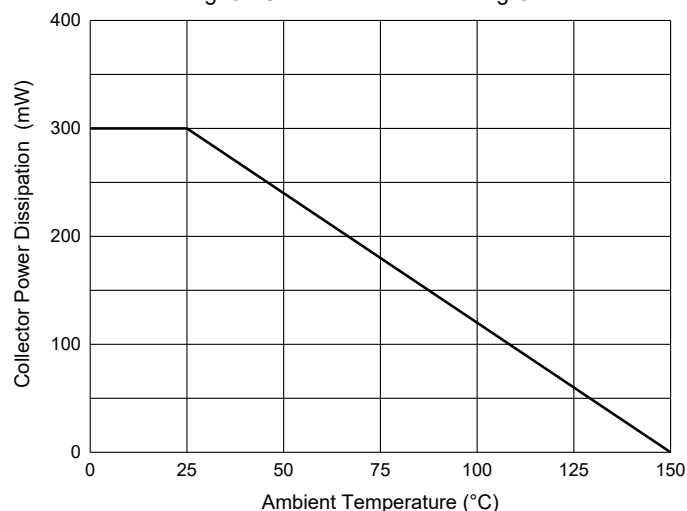


Fig. 6 - Collector Power Derating Curve



Ordering Information

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

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