

Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- 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

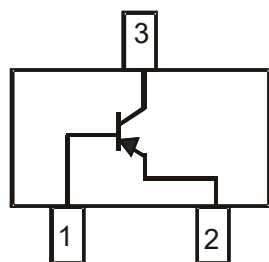
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-200	mA
Power Dissipation	P_D	300	mW

Thermal characteristics

Parameter	Symbol	Rating	Unit
Operating Junction Temperature Range	T_{OPR}	-55~+150	°C
Storage Temperature Range	T_{STR}	-55~+150	°C
Thermal Resistance from Junction to Ambient	$R_{th(j-a)}$	417	°C/W

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

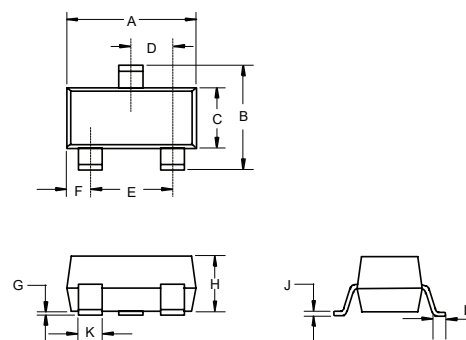
Internal Structure



1.BASE
2.EMITTER
3.COLLECTOR

PNP General Purpose Amplifier

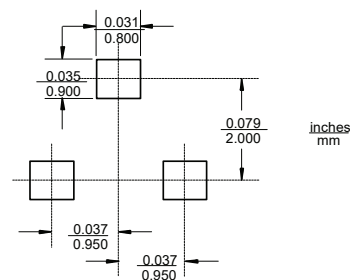
SOT-23



DIMENSIONS

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	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout

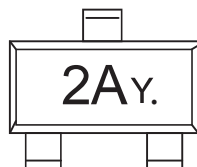


Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40			V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40			V	$I_C = -1mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -10\mu A, I_C = 0$
Collector Cutoff Current	I_{CBO}			-100	nA	$V_{CB} = -40V, I_E = 0$
Collector Cutoff Current	I_{CEX}			-50	nA	$V_{CE} = -30V, V_{BE} = -3V$
Emitter-Base Cutoff Current	I_{EBO}			-100	nA	$V_{EB} = -5V, I_C = 0$
DC Current Gain ⁽²⁾	h_{FE1}	100		300		$V_{CE} = -1V, I_C = -10mA$
	h_{FE2}	60				$V_{CE} = -1V, I_C = -50mA$
	h_{FE3}	30				$V_{CE} = -1V, I_C = -100mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.25	V	$I_C = -10mA, I_B = -1mA$
				-0.4	V	$I_C = -50mA, I_B = -5mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.65		-0.85	V	$I_C = -10mA, I_B = -1mA$
				-0.95	V	$I_C = -50mA, I_B = -5mA$
Transition Frequency	f_T	250			MHz	$V_{CE} = -20V, I_C = -10mA, f = 100MHz$
Output Capacitance	C_{obo}			4.5	pF	$V_{CB} = -5V, I_E = 0, f = 1MHz,$
Input Capacitance	C_{ibo}			10	pF	$V_{BE} = -0.5V, I_C = 0, f = 1MHz,$
Noise Figure	NF			4.0	dB	$V_{CE} = -5V, I_C = -100\mu A, R_S = 1K\Omega,$ $f = 1.0KHz$)
Delay Time	t_d			35	ns	$V_{CC} = -3V, I_C = -10mA$
Rise Time	t_r			35	ns	$V_{BE} = -0.5V, I_{B1} = -1mA$
Storage Time	t_s			225	ns	$V_{CC} = -3V, I_C = -10mA$
Fall Time	t_f			75	ns	$I_{B1} = I_{B2} = -1mA$

Note: 2. Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

Marking Information



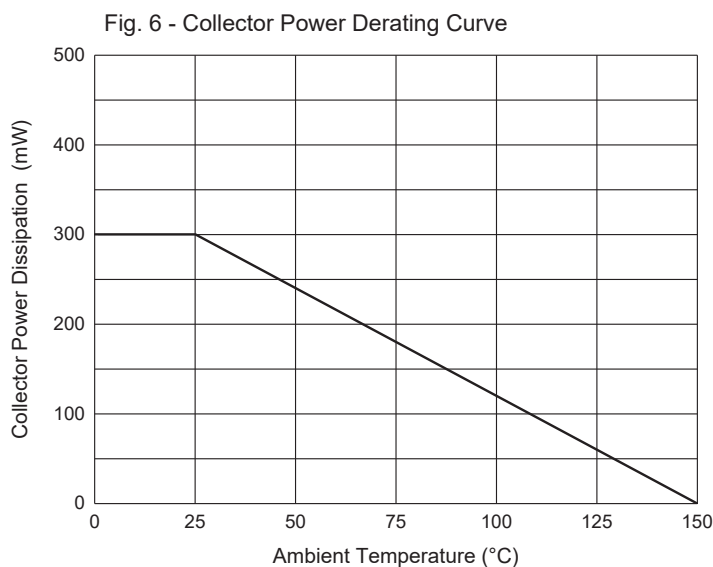
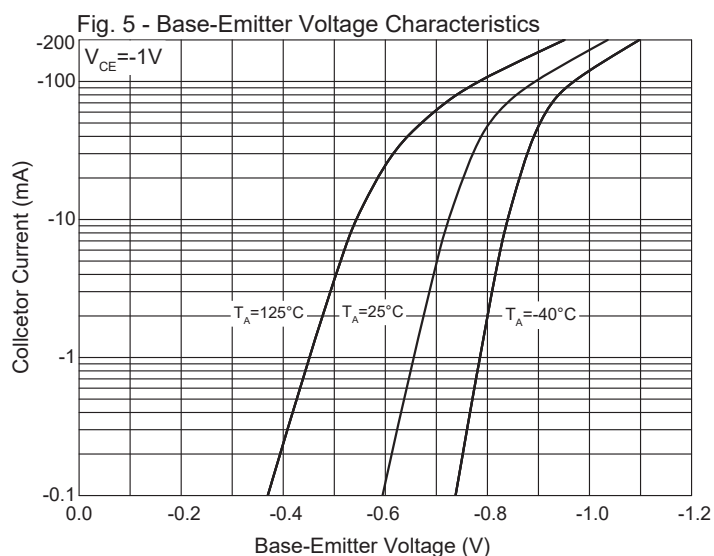
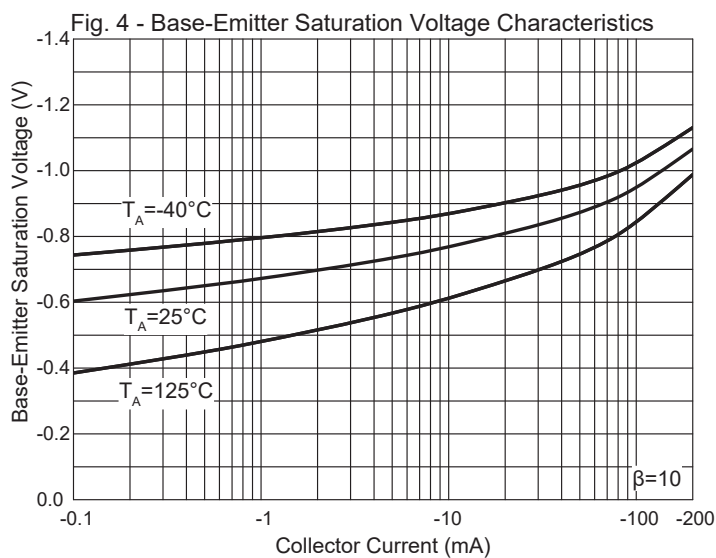
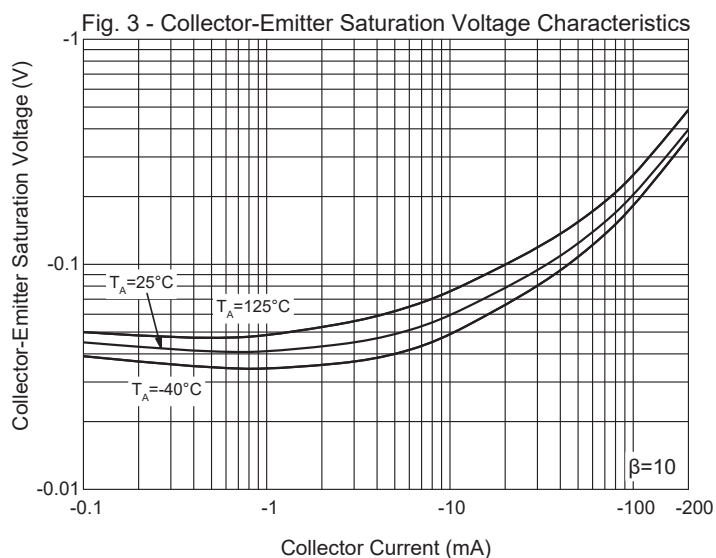
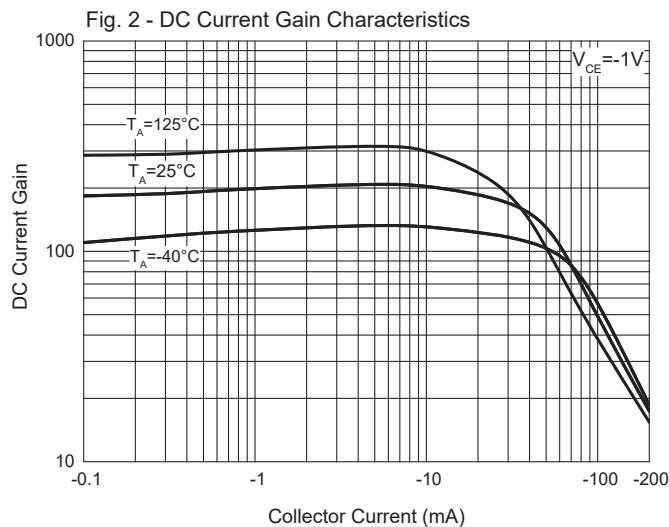
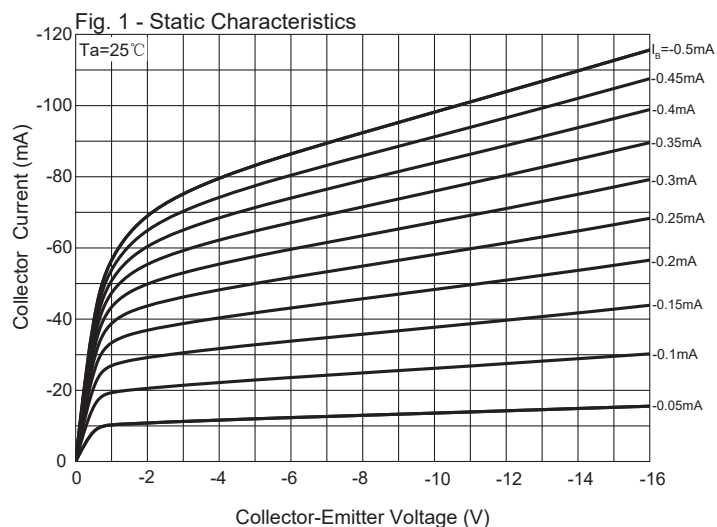
2A = Product Type Marking Code
Y=Date Code Marking

Date Code Key (2 years a cycle)

Year	2019											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	J	O	L	C	K	B	P	D	M	E	G	F

Year	2020											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	W	N	Y	T	R	H	A	I	U	X	Z	S

Curve Characteristics



Ordering Information

Device	Packing
MMBT3906HE3-TP	Tape&Reel: 3Kpcs/Reel

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