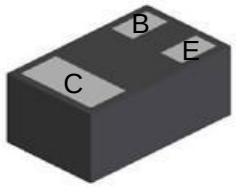
MMBT3904AG-Q1

SMD NPN Transistor

DESCRIPTION

- NPN single switching transistor ultra small SMD plastic package

DFN1006-3L



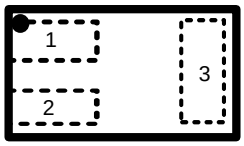
FEATURE

- Single General-Purpose Switching Transistor
- Suffix "-Q1" for AEC-Q101

APPLICATION

- General-Purpose Switching and Amplification

MARKING: 6P



1. BASE
2. EMITTER
3. COLLECTOR

TOP VIEW

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage		60	V
V_{CEO}	Collector-Emitter Voltage		40	V
V_{EBO}	Emitter-Base Voltage		6	V
I_C	Collector Current -Continuous		200	mA
P_C	Collector Dissipation	Note1	100	mW
		Note2	590	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	Note1	1250	℃/W
		Note2	212	℃/W
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55~+150	℃

Note:1. Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

2.Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector1cm^2.

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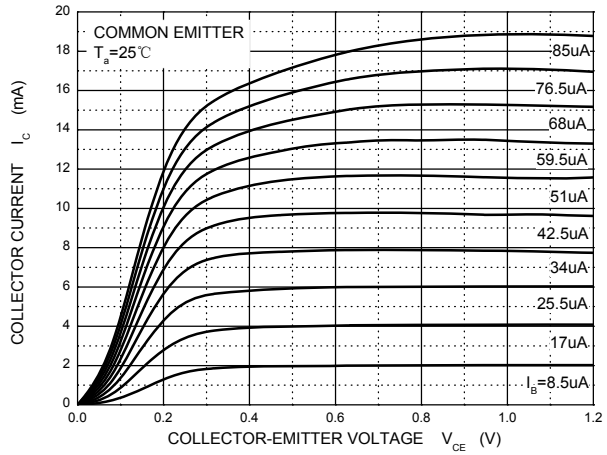
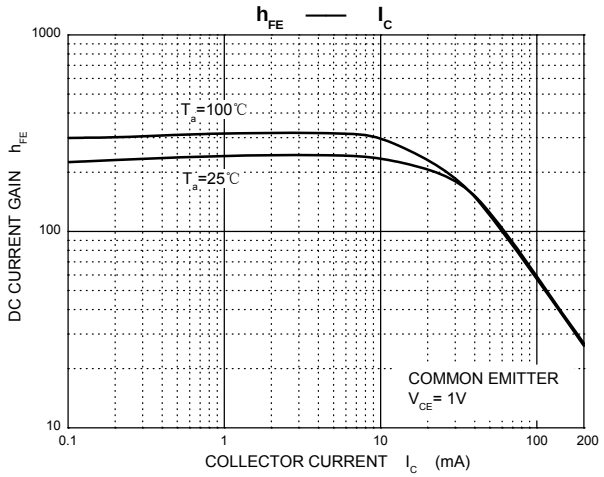
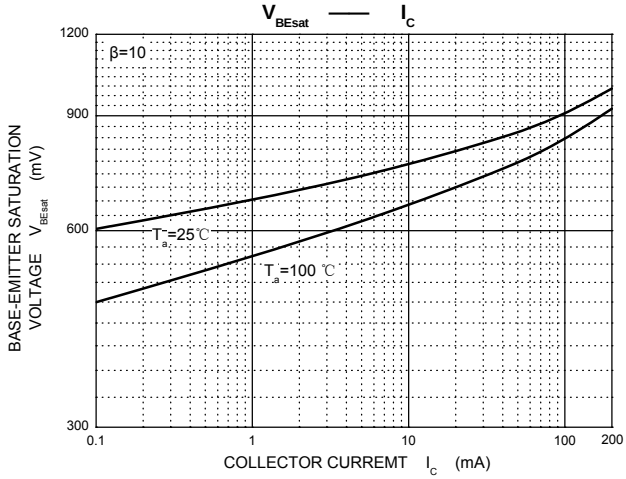
ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

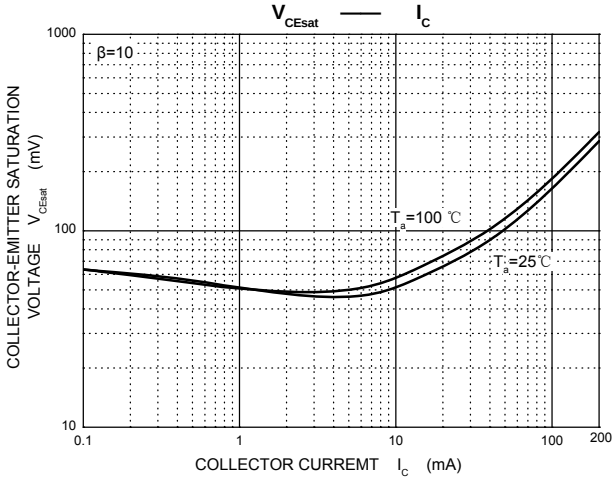
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 10μA, I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 1mA, I_B=0	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=60 V, I_E=0			0.1	μA
Collector cut-off current	I_{CEX}	V_{CE}=30V , $V_{BE(off)}$=3V			50	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}=1V, I_C=10mA	100		300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=50mA, I_B= 5mA			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=50mA, I_B= 5mA			0.95	V
Transition frequency	f_T	V_{CE}=20V, I_C=10mA,f=100MHz	300			MHz
Delay time	t_d	V_{CC}=3V, $V_{BE(off)}$=0.5V,			35	ns
Rise time	t_r	I_C=10mA, I_{B1}=1mA			35	ns
Storage time	t_s	V_{CC}=3V, I_C=10mA, I_{B1}=			200	ns
Fall time	t_f	I_{B2}=1mA			50	ns

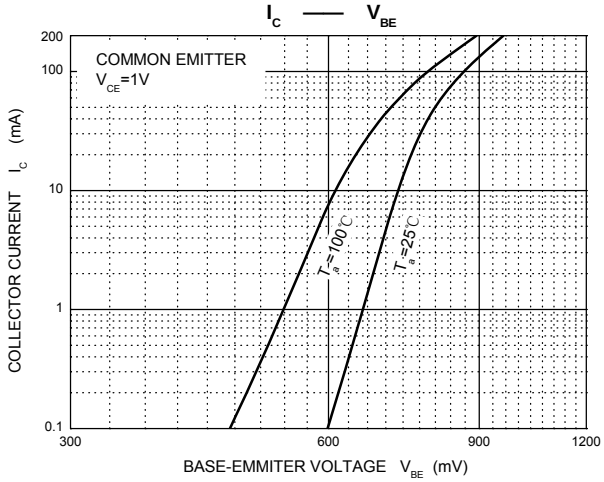
Static Characteristic

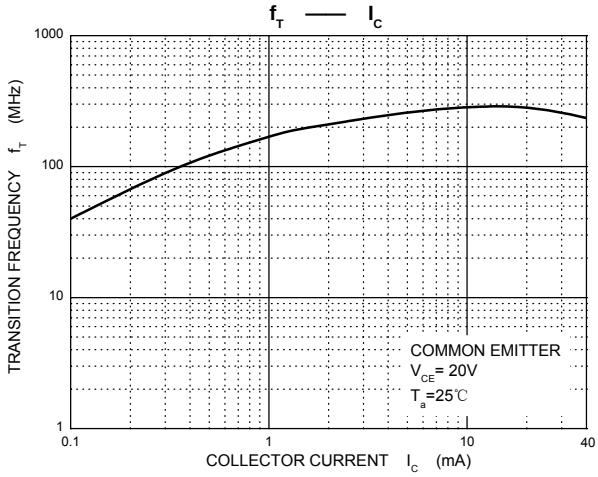




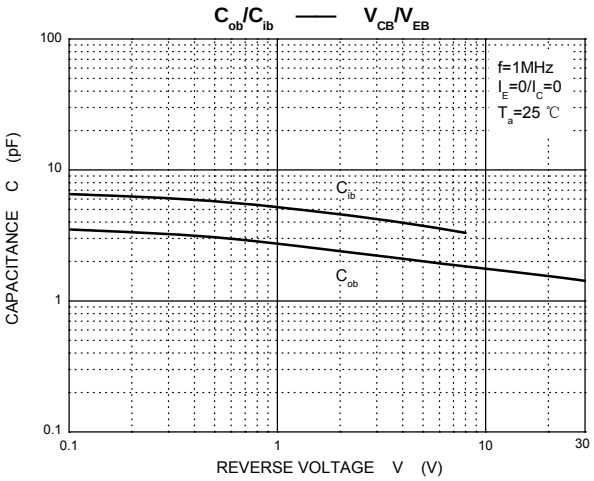


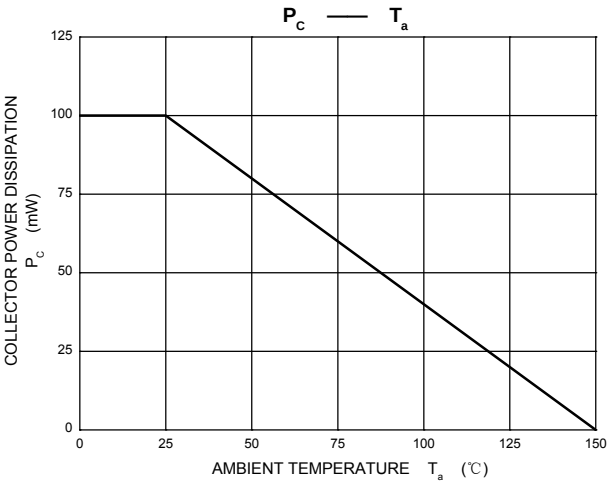






Static Characteristic





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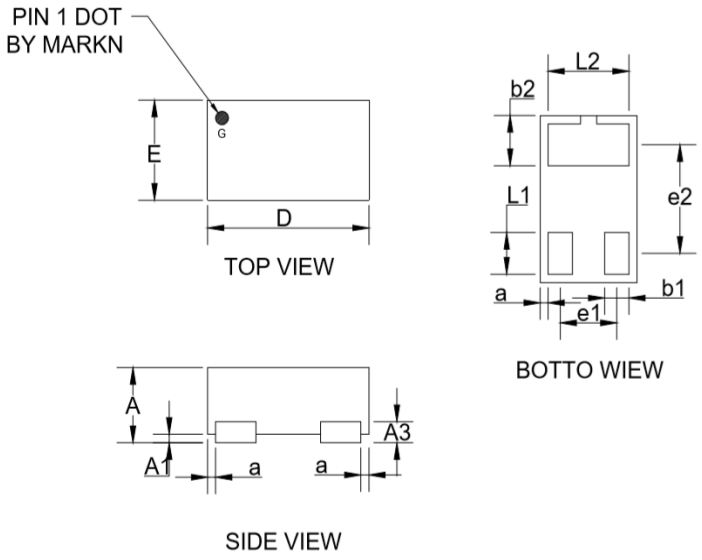
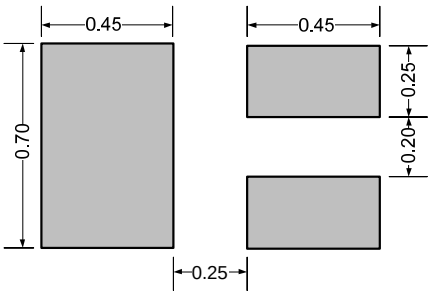
Package Outline Dimensions



SYMBOL	DIMENSIONS			
	MILLIMETERS		INCHES	
A	0.400	0.500	0.016	0.020
A1	0.000	0.050	0.000	0.002
A3	0.125 REF.		0.005 REF.	
a	-	0.050	-	0.002
b1	0.100	0.200	0.004	0.008
b2	0.200	0.300	0.008	0.012
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
e1	0.350 BSC		0.014 BSC	
e2	0.650 BSC		0.026 BSC	
L1	0.200	0.300	0.008	0.012
L2	0.400	0.600	0.016	0.024

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.050mm.
3.The pad layout is for reference purposes only.