

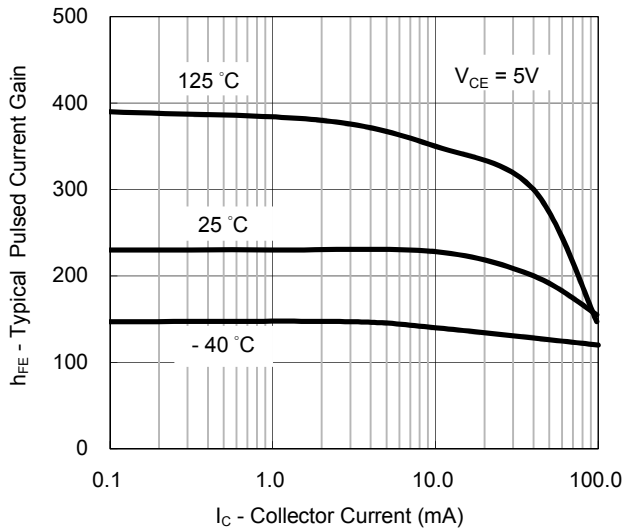
<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$I_C = 10\ \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	60	-	-	V
Collector-emitter breakdown voltage	$I_C = 1\ \text{mA}, I_B = 0$	$V_{(BR)CEO}$	40	-	-	V
Emitter-base breakdown voltage	$I_E = 10\ \mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	6	-	-	V
Collector cutoff current	$V_{CB} = 60\ \text{V}, I_E = 0$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Collector cutoff current	$V_{CE} = 30\ \text{V}, V_{BE(OFF)} = 3\ \text{V}$	$I_{CEO}$	-	-	50	nA
Emitter cutoff current	$V_{EB} = 5\ \text{V}, I_C = 0$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$
DC current gain	$V_{CE} = 1\ \text{V}, I_C = 10\ \text{mA}$	$h_{FE}$	100	-	400	
	$V_{CE} = 1\ \text{V}, I_C = 50\ \text{mA}$		60	-	-	
	$V_{CE} = 1\ \text{V}, I_C = 100\ \text{mA}$		30	-	-	
Collector-emitter saturation voltage	$I_C = 50\ \text{mA}, I_B = 5\ \text{mA}$	$V_{CE(sat)}$	-	-	0.30	V
Base-emitter saturation voltage	$I_C = 50\ \text{mA}, I_B = 5\ \text{mA}$	$V_{BE(sat)}$	-	-	0.95	V
Transition frequency	$V_{CE} = 20\ \text{V}, I_C = 10\ \text{mA}, f = 100\ \text{MHz}$	$f_T$	250	-	-	MHz
Delay time	$V_{CC} = 3\ \text{V}, V_{BE} = 0.5\ \text{V}, I_C = 10\ \text{mA}, I_{B1} = 1\ \text{mA}$	$t_d$	-	-	35	ns
Rise time		$t_r$	-	-	35	ns
Storage time	$V_{CC} = 3\ \text{V}, I_{B1} = I_{B2} = 1\ \text{mA}, I_C = 10\ \text{mA}$	$t_s$	-	-	200	ns
Fall time		$t_f$	-	-	50	ns

<b>ORDERING INFORMATION</b>		
ORDERING CODE	PACKAGE	PACKING
MMBT3904 RF	SOT-23	3K / 7" Reel
MMBT3904 RFG	SOT-23	3K / 7" Reel
MMBT3904 R5	SOT-23	10K / 13" Reel
MMBT3904 R5G	SOT-23	10K / 13" Reel
MMBT3904-D0 RF	SOT-23	3K / 7" Reel
MMBT3904-D0 RFG	SOT-23	3K / 7" Reel
MMBT3904-D0 R5	SOT-23	10K / 13" Reel
MMBT3904-D0 R5G	SOT-23	10K / 13" Reel
MMBT3904-B0 RF	SOT-23	3K / 7" Reel
MMBT3904-B0 RFG	SOT-23	3K / 7" Reel
MMBT3904-B0 R5	SOT-23	10K / 13" Reel
MMBT3904-B0 R5G	SOT-23	10K / 13" Reel

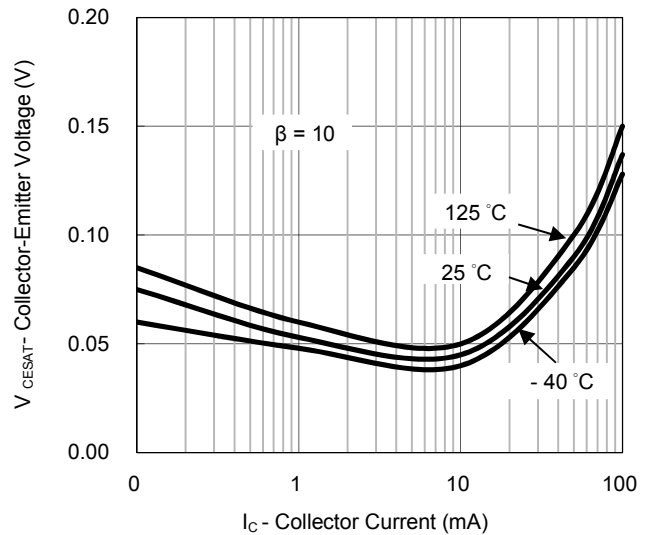
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

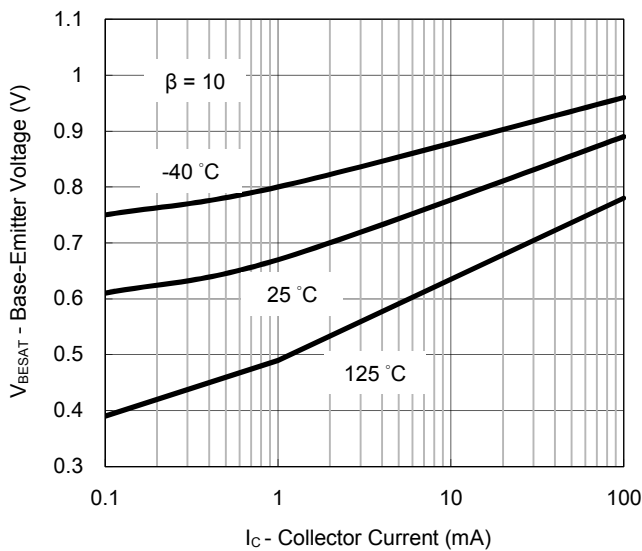
**Fig. 1 Typical Pulsed Current Gain VS. Collector Current**



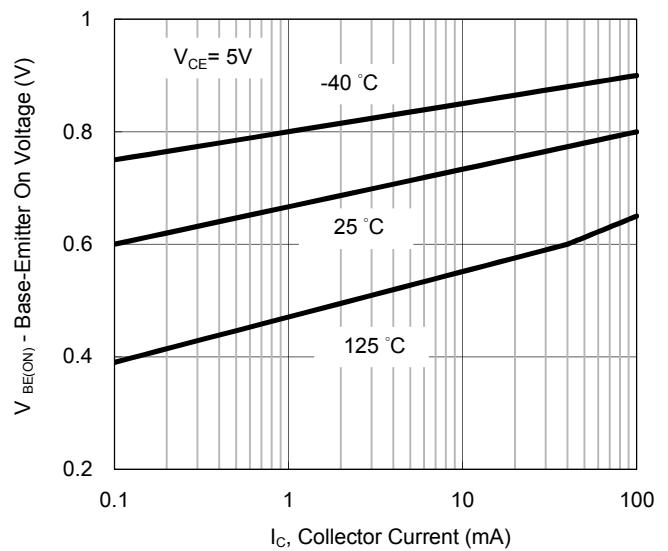
**Fig.2 Collector-Emitter Saturation Voltage VS. Collector Current**



**Fig.3 Base-Emitter Saturation Voltage VS. Collector Current**



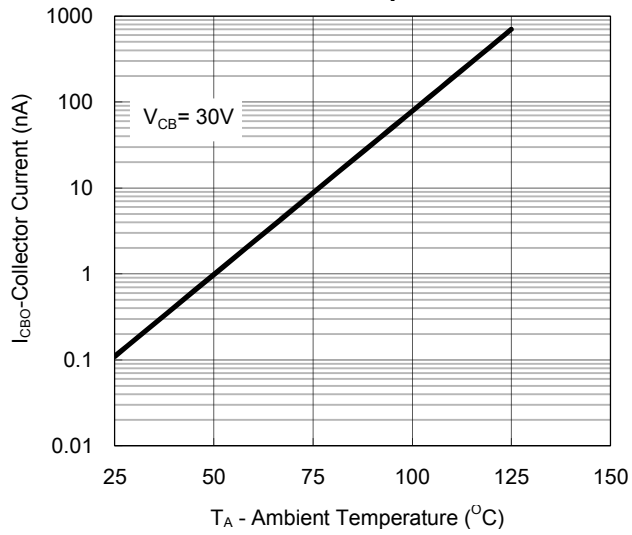
**Fig.4 Base-Emitter On Voltage VS. Collector Current**



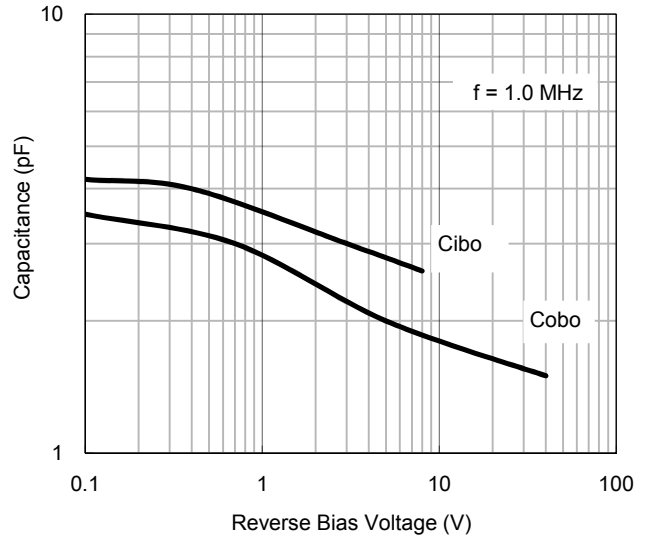
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig. 5 Collector-Cutoff Current VS. Ambient Temperature**

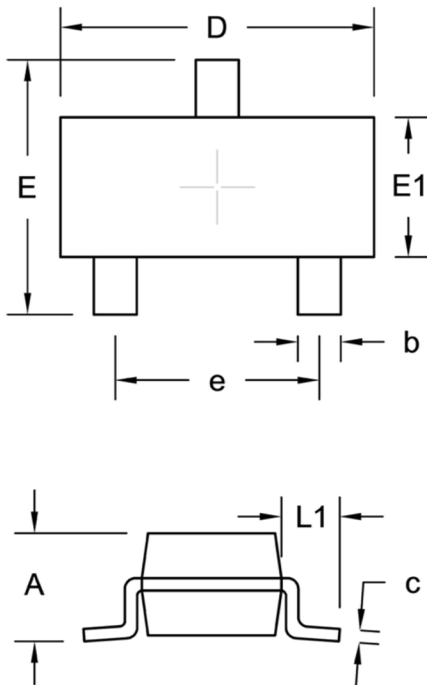


**Fig. 6 Capacitance VS. Reverse Bias Voltage**



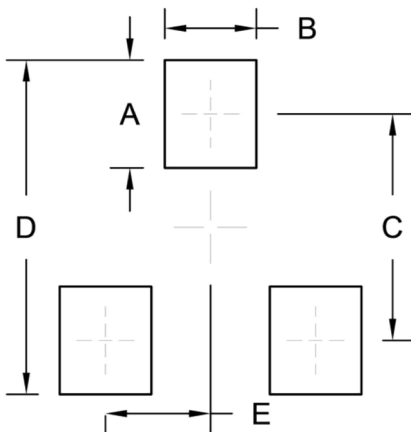
**PACKAGE OUTLINE DIMENSION**

**SOT-23**



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.89	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L1	0.54 REF.		0.021 REF.	

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
B	0.85	0.033
C	2.10	0.083
D	3.10	0.122
E	0.98	0.039

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