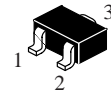
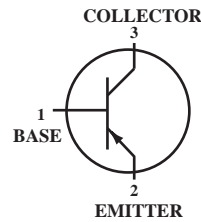


PNP General Purpose Transistors

 Lead(Pb)-Free



SOT-523(SC-75)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-60	Vdc
Collector-Base Voltage	V_{CBO}	-60	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current-Continuous	I_C	-600	mAdc

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board ⁽¹⁾ $T_A=25^\circ\text{C}$	P_D	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction and Storage, Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

DEVICE MARKING

MMBT2907AT=2F

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = -10 \text{ mAdc}, I_B = 0$) ⁽²⁾	$V_{(BR)CEO}$	-60	-	Vdc
Collector-Base Breakdown Voltage ($I_C = -10 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	-60	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = -10 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	-5.0	-	Vdc
Collector Cutoff Current ($V_{CB} = -50 \text{ Vdc}, I_E = 0$)	I_{CBO}	-	-10	nAdc
Emitter Cutoff Current ($V_{EB} = -4 \text{ Vdc}, I_C = 0$)	I_{EBO}	-	-10	nAdc

1. FR-5=1.0 x 0.75 x 0.062 in

2. Pulse Test: Pulse Width=300 us, Duty Cycle $\leq 2.0\%$

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Max	Unit
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ON CHARACTERISTICS⁽¹⁾

DC Current Gain (I _C = -0.1 mA _{dc} , V _{CE} = -10 V _{dc})	hFE	75	-	-	
(I _C = -1.0 mA _{dc} , V _{CE} = -10 V _{dc})		100	-	-	
(I _C = -10 mA _{dc} , V _{CE} = -10 V _{dc})		100	-	-	
(I _C = -150 mA _{dc} , V _{CE} = -10 V _{dc})		100	-	300	
(I _C = -500 mA _{dc} , V _{CE} = -10 V _{dc})		50	-	-	
Collector-Emitter Saturation Voltage ⁽³⁾ (I _C = -150 mA _{dc} , I _B = -15 mA _{dc}) (I _C = -500 mA _{dc} , I _B = -50 mA _{dc})	VCE(sat)	-	-	-0.4	V _{dc}
		-	-	-1.6	
Base-Emitter Saturation Voltage ⁽³⁾ (I _C = -150 mA _{dc} , I _B = -15 mA _{dc}) (I _C = -500 mA _{dc} , I _B = -50 mA _{dc})	VBE(sat)	-	-	-1.3	V _{dc}
		-	-	-2.6	

SMALL-SIGNAL CHARACTERISTICS

Current-Gain-Bandwidth Product ⁽¹⁾ (I _C = -2.0 mA _{dc} , V _{CE} = -12 V _{dc} , f = 30 MHz)	f _T	-	140	-	MHz
Output Capacitance (V _{CB} = -12 V _{dc} , I _E = 0, f = 1.0 MHz)	CoBo	-	-	5.0	pF

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Max	Unit
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SWITCHING CHARACTERISTICS

Turn-On Time	(V _{CC} = -30 V _{dc} , I _C = -150 mA _{dc} , I _{B1} = -15 mA _{dc})	t _{on}	-	45	ns
Delay Time		t _d	-	10	
Rise Time		t _r	-	40	
Turn-Off Time	(V _{CC} = -60 V _{dc} , I _C = -150 mA _{dc} , I _{B1} = I _{B2} = -15 mA _{dc})	t _{off}	-	100	
Storage Time		t _s	-	80	
Fall Time		t _f	-	30	

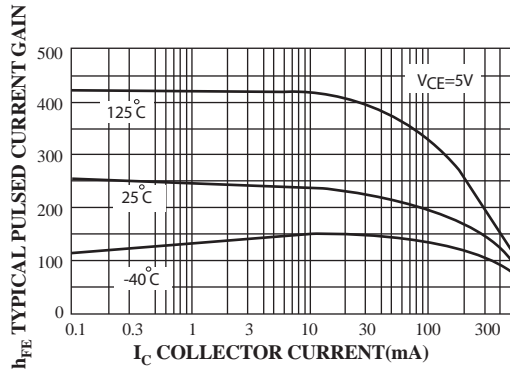


FIG.1 Typical Pulsed Current Gain vs Collector Current

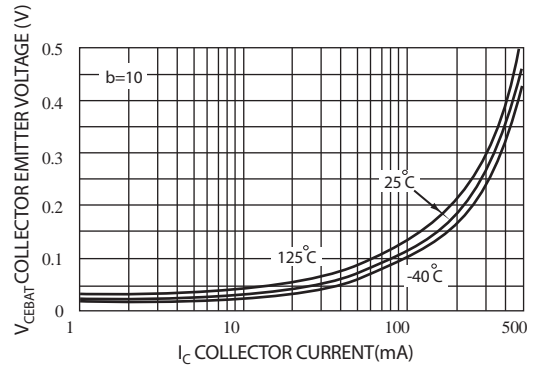


FIG.2 Collector-Emitter Saturation Voltage vs collector Current

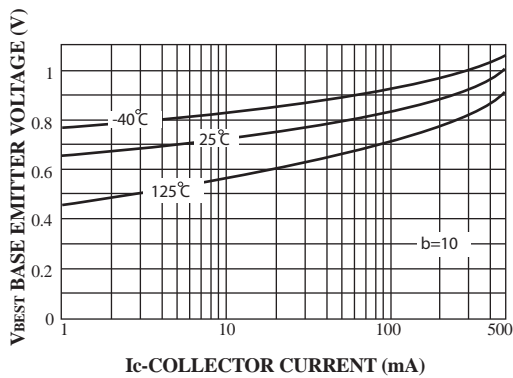


FIG.3 Base-Emitter Saturation Voltage vs Collector Current

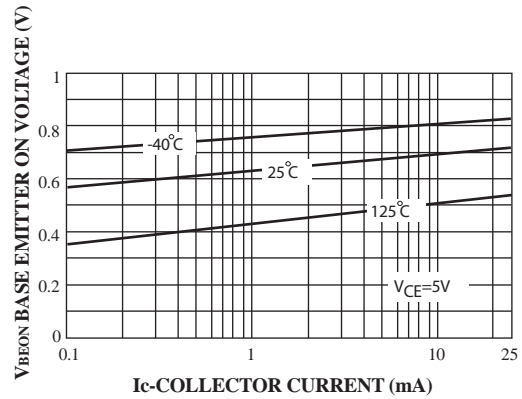


FIG.4 Base Emitter ON Voltage vs Collector Current

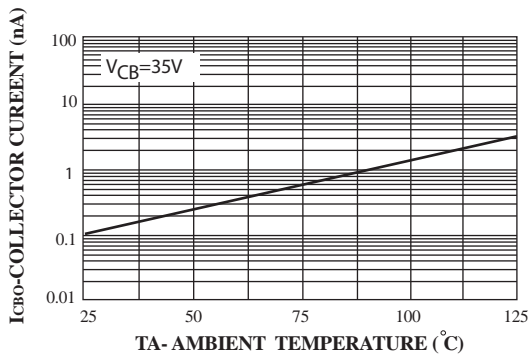


FIG.5 Collector-Cutoff Current vs. Ambient Temperature

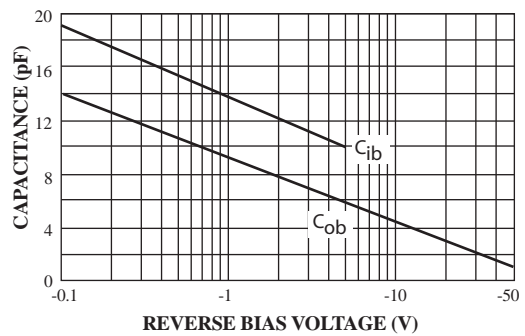


FIG.6 Input and Output Capacitance vs Reverse Bias Voltage

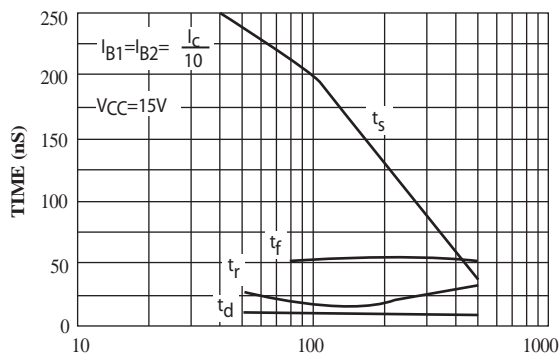


FIG.7 Switching Times vs Collector Current

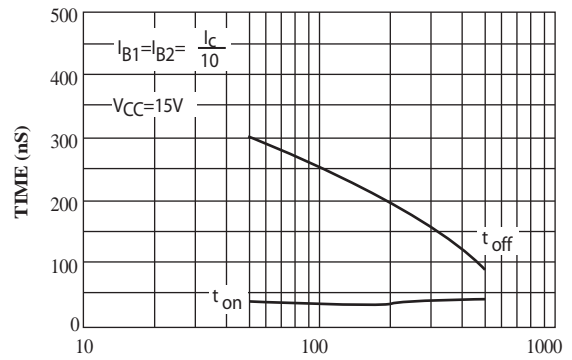


FIG.8 Turn On and Turn Off Times vs Collector Current

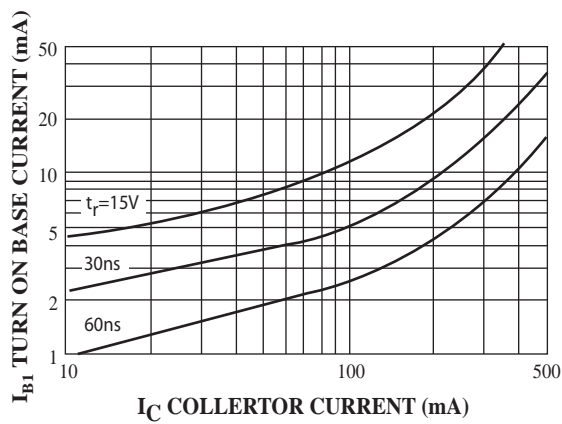
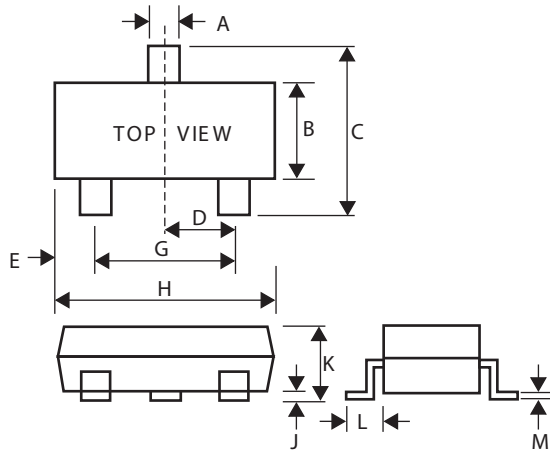


FIG.9 Rise Time vs Collector and Turn On Base Current

SOT-523 Outline Dimensions (SC-75)

Unit:mm



SC-75		
Dim	Min	Max
A	0.30	0.50
B	0.70	0.90
C	1.45	1.75
D	-	0.50
E	0.15	0.40
G	0.80	1.00
H	1.40	1.80
J	0.00	0.10
K	0.70	1.00
L	0.37	0.48
M	0.10	0.25