

Small Signal Product

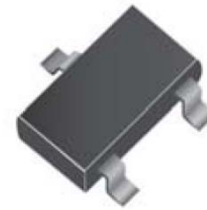
Features

- ◇ Epitaxial planar die construction
- ◇ Surface device type mounting
- ◇ Moisture sensitivity level 1
- ◇ Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ◇ Pb free version and RoHS compliant
- ◇ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

Mechanical Data

- ◇ Case : SOT- 23 small outline plastic package
- ◇ Terminal : Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- ◇ High temperature soldering guaranteed : 260°C/10s
- ◇ Weight : 0.008 grams (approximately)
- ◇ Marking Code : 2F

SOT-23



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Parameter	Symbol	Value	Units
Power Dissipation	P_D	350	mW
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-600	mA
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C

Notes:1. Valid provided that electrodes are kept at ambient temperature

Small Signal Product

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

Parameter				Symbol	Min	Max	Units
Collector-Base Breakdown Voltage	$I_C = -10\mu\text{A}$	$I_E = 0$		$V_{(BR)CBO}$	-60	-	V
Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}$	$I_B = 0$		$V_{(BR)CEO}$	-60	-	V
Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}$	$I_C = 0$		$V_{(BR)EBO}$	-5	-	V
Collector Cut-off Current	$V_{CB} = -50\text{V}$	$I_E = 0$		I_{CBO}	-	-20	nA
Collector Cut-off Current	$V_{CE} = -30\text{V}$	$V_{BE(OFF)} = -0.5\text{V}$		I_{CEX}	-	-50	nA
Base Cut-off Current	$V_{CE} = -30\text{V}$	$V_{BE(OFF)} = -0.5\text{V}$		I_B	-	-50	nA
DC Current Gain	$V_{CE} = -10\text{V}$	$I_C = -0.1\text{mA}$		h_{FE}	75	-	
	$V_{CE} = -10\text{V}$	$I_C = -1\text{mA}$			100	-	
	$V_{CE} = -10\text{V}$	$I_C = -10\text{mA}$			100	-	
	$V_{CE} = -10\text{V}$	$I_C = -150\text{mA}$			100	300	
	$V_{CE} = -10\text{V}$	$I_C = -500\text{mA}$			50	-	
Collector-Emitter Saturation Voltage	$I_C = -150\text{mA}$	$I_B = -15\text{mA}$		$V_{CE(sat)}$	-	-0.4	V
	$I_C = -500\text{mA}$	$I_B = -50\text{mA}$			-	-1.6	
Base-Emitter Saturation Voltage	$I_C = -150\text{mA}$	$I_B = -15\text{mA}$		$V_{BE(sat)}$	-	-1.3	V
	$I_C = -500\text{mA}$	$I_B = -50\text{mA}$			-	-2.6	
Transition Frequency	$V_{CE} = -20\text{V}$	$I_C = -50\text{mA}$	$f = 100\text{MHz}$	f_T	200	-	MHz
Output Capacitance	$V_{CB} = -10\text{V}$	$I_E = 0$	$f = 100\text{KHz}$	C_{obo}	-	8.0	pF
Input Capacitance	$V_{EB} = -2\text{V}$	$I_C = 0$	$f = 100\text{KHz}$	C_{ibo}	-	30	pF
Delay Time	$V_{CE} = -30\text{V}$	$I_C = -150\text{mA}$	$I_{B1} = -15\text{mA}$	t_d	-	10	nS
Rise Time	$V_{CE} = -30\text{V}$	$I_C = -150\text{mA}$	$I_{B1} = -15\text{mA}$	t_r	-	40	nS
Storage Time	$V_{CE} = -6\text{V}$	$I_C = -150\text{mA}$	$I_{B1} = -I_{B2} = -15\text{mA}$	t_s	-	225	nS
Fall Time	$V_{CE} = -6\text{V}$	$I_C = -150\text{mA}$	$I_{B1} = -I_{B2} = -15\text{mA}$	t_f	-	60	nS

Small Signal Product

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 Typical Pulsed Current Gain VS. Collector Current

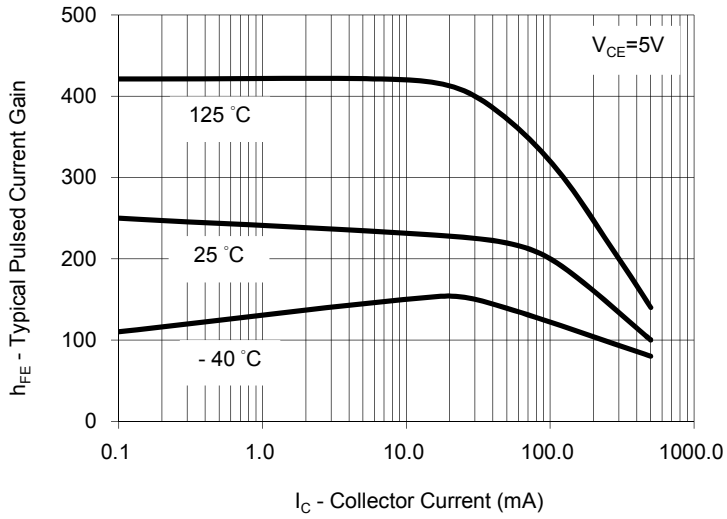


Fig. 2 Collector-Emitter Saturation Voltage VS. Collector Current

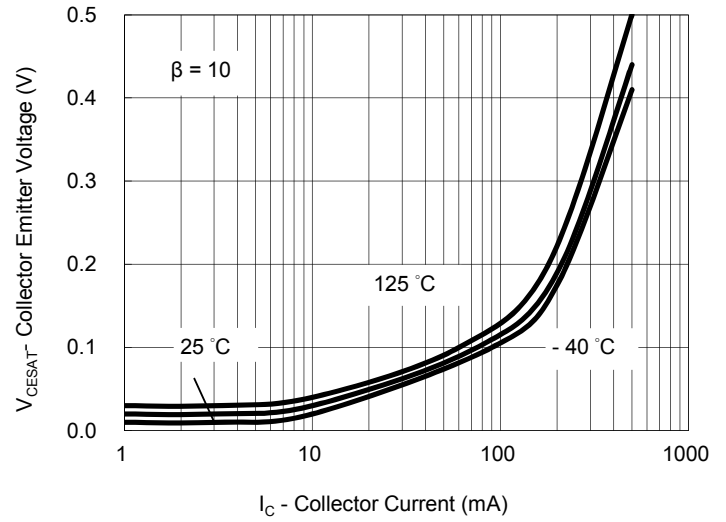


Fig. 3 Base-Emitter Saturation Voltage VS. Collector Current

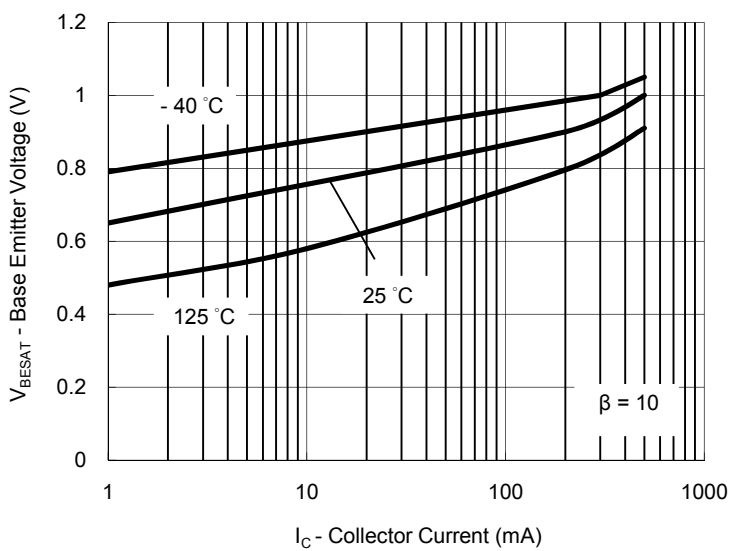


Fig. 4 Base Emitter On Voltage VS. Collector Current

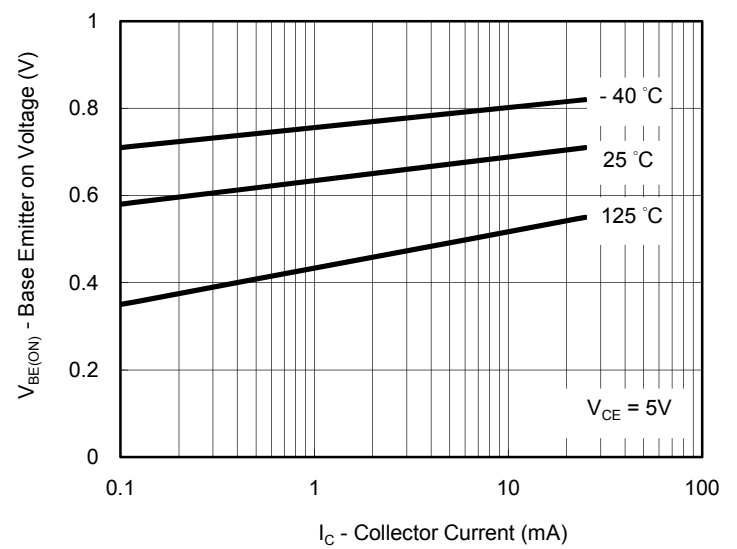


Fig. 5 Collector-Cutoff Current VS. Ambient Temperature

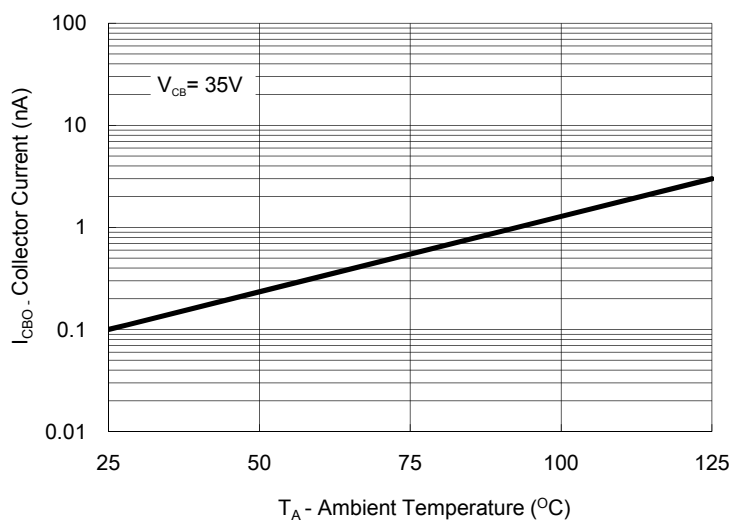
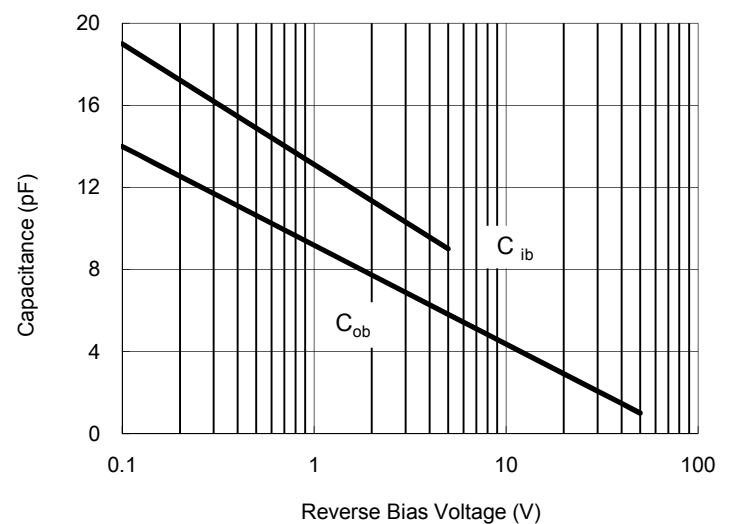


Fig. 6 Input and Output Capacitance VS. Reverse Bias Voltage



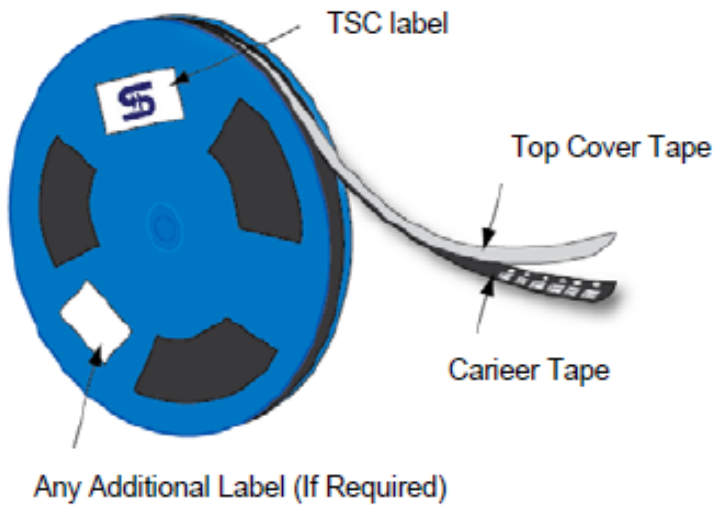
Small Signal Product

Ordering information (Detail, example)

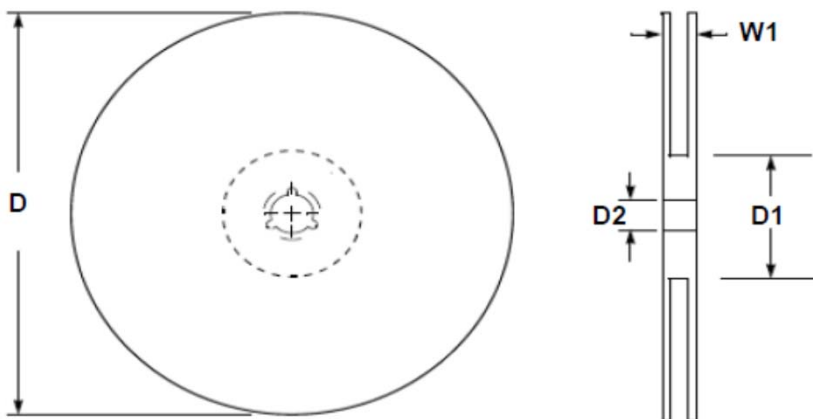
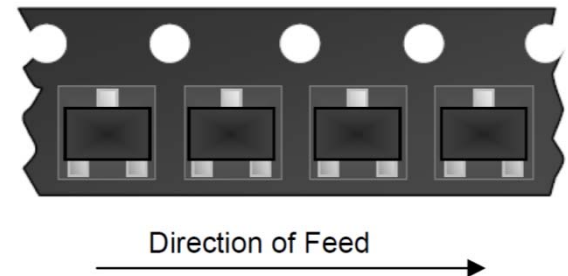
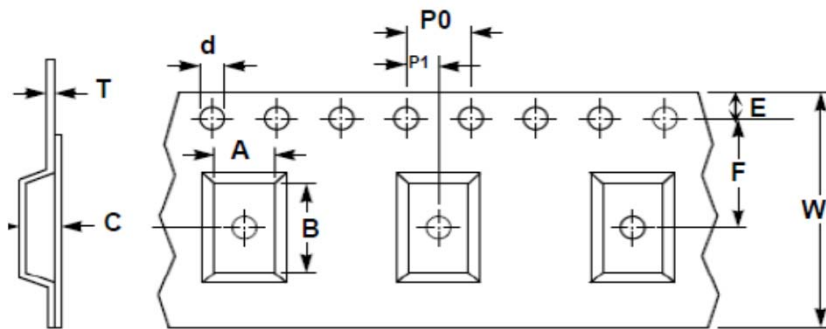
Part No.	Package	Packing	Packing code	Packing code (Green)	Marking	Manufacture code
MMBT2907A	SOT-23	3K / 7" Reel	RF	RFG	2F	(Note)
MMBT2907A	SOT-23	3K / 7" Reel	RF	RFG	2F	

Note : Manufacture special control, if empty means no special control requirement.

Tape & Reel specification

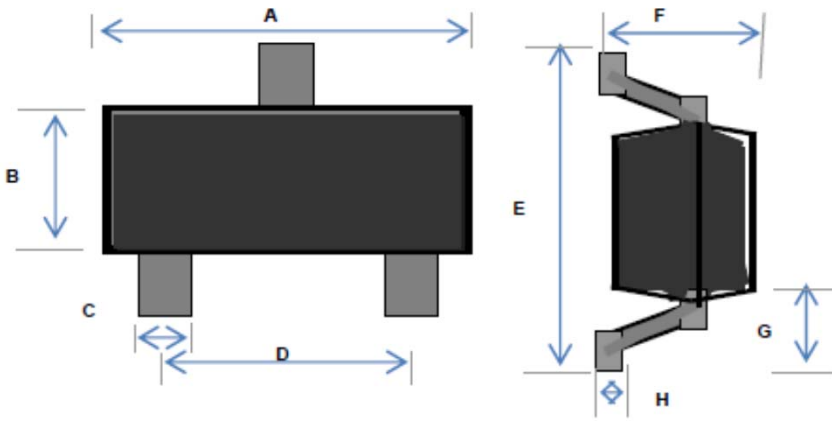


Item	Symbol	Dimension
Carrier width	A	3.15 ± 0.10
Carrier length	B	2.77 ± 0.10
Carrier depth	C	1.22 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	55 Min
Feed hole width	D2	13.0 ± 0.20
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.05
Sprocket hole pitch	P0	4.00 ± 0.10
Embossment center	P1	2.00 ± 0.05
Overall tape thickness	T	0.229 ± 0.013
Tape width	W	8.10 ± 0.20
Reel width	W1	12.30 ± 0.20



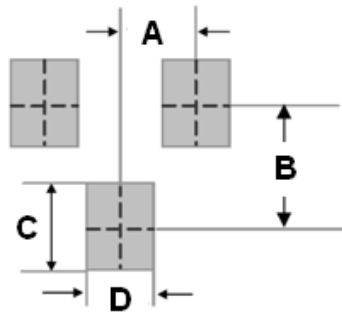
Small Signal Product

Dimensions



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.550 REF		0.022 REF	
H	0.1 REF		0.004 REF	

Suggested PAD Layout



DIM.	Unit(mm)	Unit(inch)
	Typ.	Typ.
A	0.95	0.037
B	2.0	0.079
C	0.9	0.035
D	0.8	0.031