350mW, PNP Small Signal Transistor

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{CBO}	-60	V
V_{CEO}	-60	V
V_{EBO}	-5	V
I_C	-600	mA
h_{FE}	300	

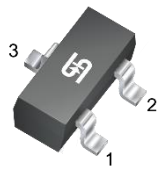
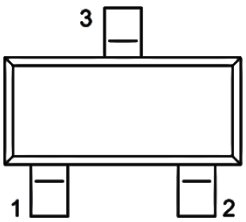
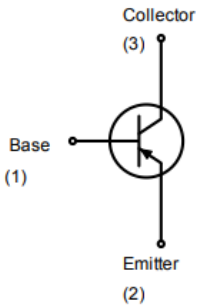
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

Pb-Free RoHS COMPLIANT HALOGEN FREE

MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 0.008g (approximately)

PACKAGE: SOT-23	PIN CONFIGURATION	CIRCUIT DIAGRAM
		

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
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
Power dissipation	P_D	350	mW
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

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ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	I_C = -10 μA, I_E = 0	$V_{(BR)CBO}$	-60	-	-	V
Collector-emitter breakdown voltage	I_C = -10 mA, I_B = 0	$V_{(BR)CEO}$	-60	-	-	V
Emitter-base breakdown voltage	I_E = -10 μA, I_C = 0	$V_{(BR)EBO}$	-5	-	-	V
Collector cutoff current	V_{CB} = -50 V, I_E = 0	I_{CBO}	-	-	-20	nA
Emitter cutoff current	V_{CE} = -30 V, $V_{BE(OFF)}$ = -0.5V	I_{CEX}	-	-	-50	nA
Base cut-off current	V_{CE} = -30 V, $V_{BE(OFF)}$ = -0.5V	I_B	-	-	-50	nA
DC current gain	V_{CE} = -10 V, I_C = -0.1 mA	h_{FE}	75	-	-	
	V_{CE} = -10 V, I_C = -1 mA		100	-	-	
	V_{CE} = -10 V, I_C = -10 mA		100	-	-	
	V_{CE} = -10 V, I_C = -150 mA		100	-	300	
	V_{CE} = -10 V, I_C = -500 mA		50	-	-	
Collector-emitter saturation voltage	I_C = -150 mA, I_B = -15 mA	$V_{CE(sat)}$	-	-	-0.4	V
	I_C = -500 mA, I_B = -50 mA		-	-	-1.6	
Base-emitter saturation voltage	I_C = -150 mA, I_B = -15 mA	$V_{BE(sat)}$	-	-	-1.3	V
	I_C = -500 mA, I_B = -50 mA		-	-	-2.6	
Transition frequency	V_{CE} = -20 V , I_C = -50 mA, f= 100MHz	f_T	200	-	-	MHz
Output capacitance	f=100KHz, V_{CB} = -10 V, I_E = 0	C_{obo}	-	-	8	pF
Input capacitance	f=100KHz, V_{EB} = -2 V, I_C = 0	C_{ibo}	-	-	30	pF
Delay time	V_{CE}=-30V, I_{B1}= -15mA, I_C=-150mA	t_d	-	-	10	ns
Rise time	V_{CE}=-30V, I_{B1}= -15mA, I_C=-150mA	t_r	-	-	40	ns
Storage time	V_{CE}=-6V, I_{B1}= -I_{B2}= -15mA, I_C=-150mA	t_s	-	-	225	ns
Fall time	V_{CE}=-6V, I_{B1}= -I_{B2}= -15mA, I_C=-150mA	t_f	-	-	60	ns

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
MMBT2907A RFG	SOT-23	3K / 7" Reel

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CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig. 1 Typical Pulsed Current Gain VS. Collector Current

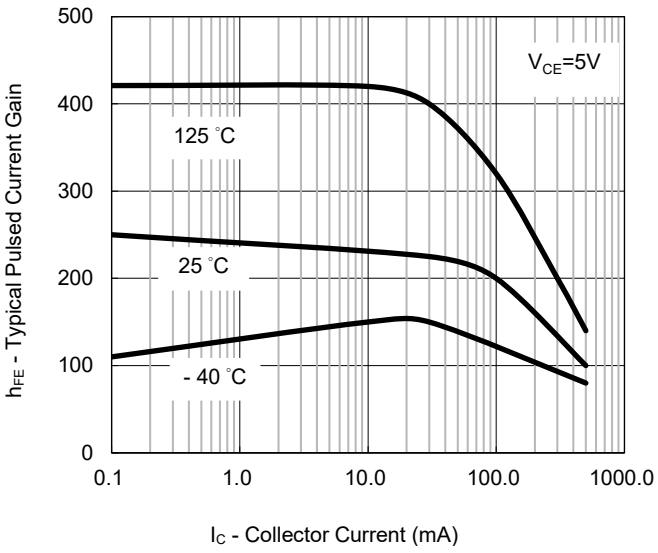


Fig.2 Collector-Emitter Saturation Voltage VS. Collector Current

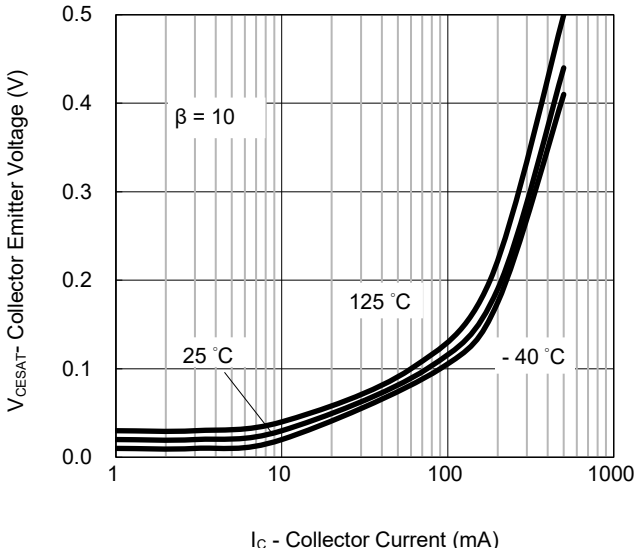


Fig.3 Base-Emitter Saturation Voltage VS. Collector Current

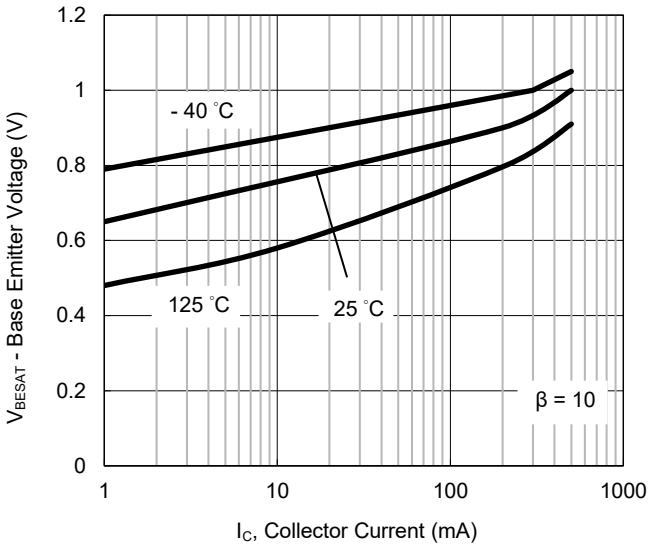
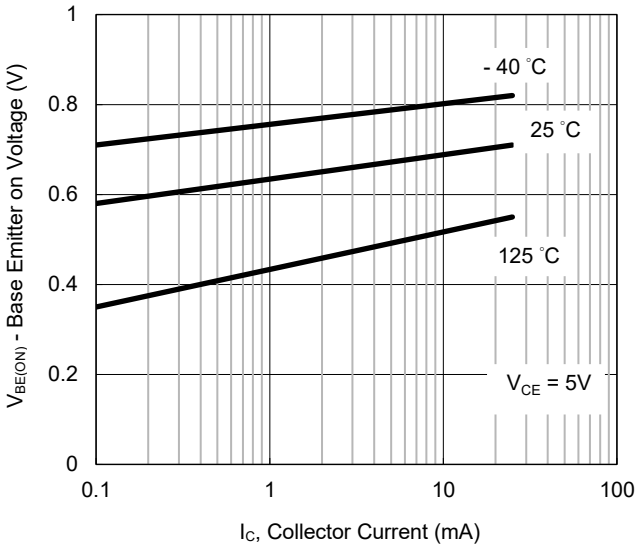


Fig.4 Base Emitter On Voltage VS. Collector Current



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CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Collector-Cutoff Current VS. Ambient Temperature

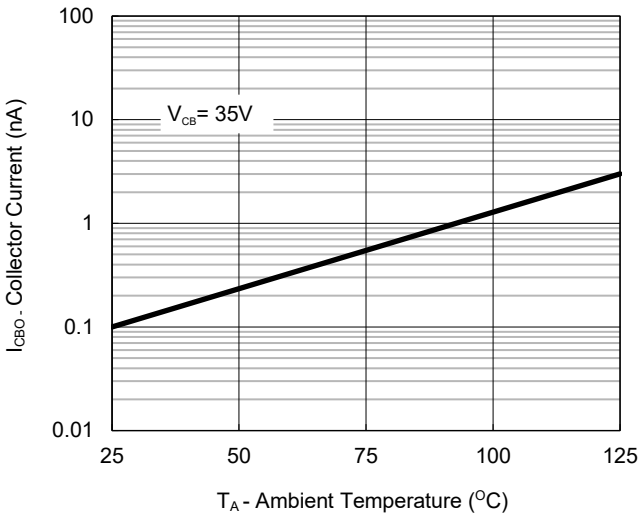
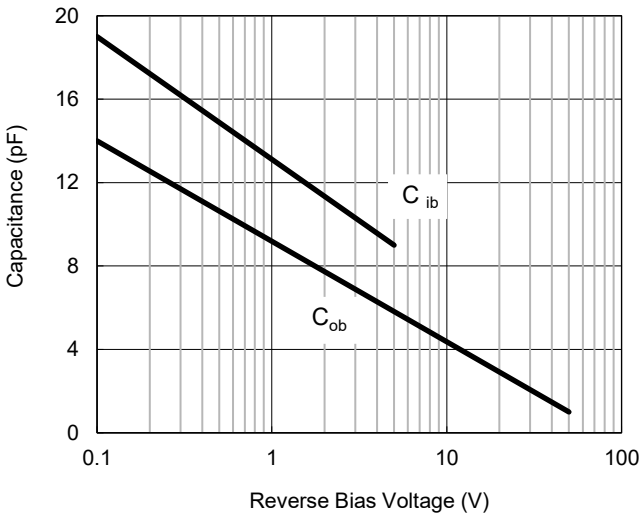


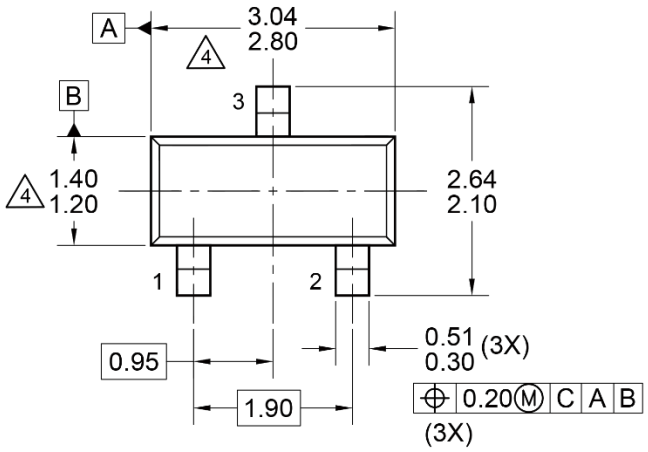
Fig.6 Input and Output Capacitance VS. Reverse Bias Voltage

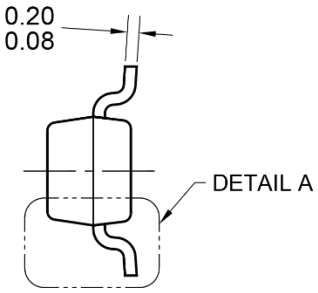


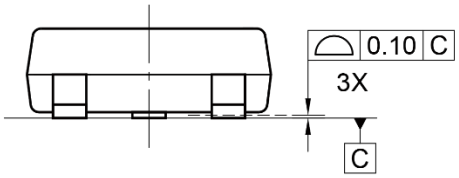
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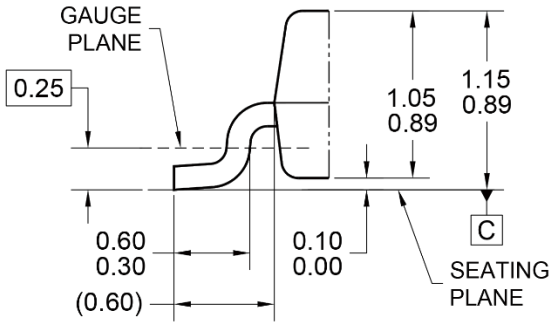
PACKAGE OUTLINE DIMENSIONS

SOT-23

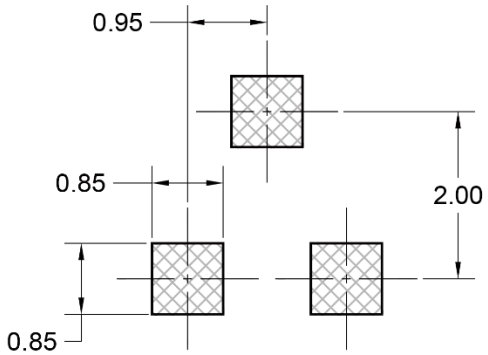




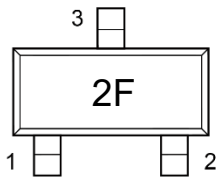




DETAIL A, ROTATED -90°
(SCALE 2:1)



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

2F = Device marking

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-236, ISSUE H, VARIATION AA.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOT23JEDEC-104 REV B.

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