

PNP GENERAL PURPOSE TRANSISTOR

REVERSE VOLTAGE – 400 Volts
FORWARD CURRENT – 0.15 Amperes

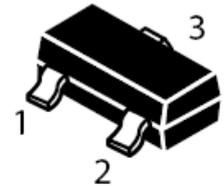
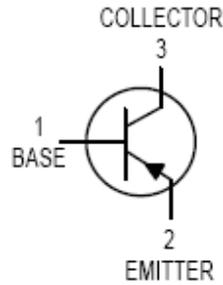
FEATURES

- Surface mount device
- Simplifies circuit design
- Reduces board space
- Reduces component count
- Complementary to MMBTA44

MECHANICAL DATA

- Case: SOT-23 plastic
- Lead Free in RoHS 2002/95/EC Compliant
- Case material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)

SOT-23



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS
Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector-emitter voltage	V_{CEO}	- 400	Vdc
Collector-base voltage	V_{CBO}	- 400	Vdc
Emitter-base voltage	V_{EBO}	- 6	Vdc
Collector current-continuous	I_C	- 150	mAdc

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Total device dissipation @ $T_A = 25^\circ\text{C}$	P_D	350	mW
Junction temperature rang	T_J	150	°C
Storage temperature rang	T_{STG}	-55 to +150	°C

REV-0, MAY.-2015, KSPR20

ORDERING INFORMATION

DEVICE	MARKING	SHIPPING
MMBTA94	4Z	3000/ Tape & Reel

ELECTRICAL CHARACTERISTIC

MMBTA94



OFF CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MIN.	MAX	UNIT
Collector-base breakdown voltage	$I_C = -100 \mu\text{Adc}$, $I_E = 0$	$V_{(BR)CBO}$	-400	--	Vdc
Collector-emitter breakdown voltage	$I_C = -1 \text{ mAdc}$, $I_B = 0$	$V_{(BR)CEO}$	-400	--	Vdc
Emitter-base breakdown voltage	$I_E = -10 \mu\text{Adc}$, $I_C = 0$	$V_{(BR)EBO}$	-6	--	Vdc
Collector cutoff current	$V_{CB} = -400 \text{ Vdc}$, $I_E = 0$	I_{CBO}	--	-0.1	μAdc
Emitter cutoff current	$V_{EB} = -6 \text{ Vdc}$, $I_C = 0$	I_{EBO}	--	-0.1	μAdc
Collector cutoff current	$V_{CE} = -400 \text{ Vdc}$, $V_{BE} = 0$	I_{CES}	--	-0.5	μAdc

ON CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MIN.	MAX	UNIT
DC current gain	$I_C = -1 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$	η_{FE} (Note 1)	50	--	--
	$I_C = -10 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$		75	200	
	$I_C = -50 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$		60	--	
	$I_C = -100 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$		20	--	
Collector-emitter saturation voltage	$I_C = -1 \text{ mAdc}$, $I_B = -0.1 \text{ mAdc}$	$V_{CE(SAT)}$ (Note 1)	--	-0.2	Vdc
	$I_C = -10 \text{ mAdc}$, $I_B = -1 \text{ mAdc}$		--	-0.3	
	$I_C = -50 \text{ mAdc}$, $I_B = -5 \text{ mAdc}$		--	-0.6	
Base-emitter on voltage	$I_C = -10 \text{ mAdc}$, $I_B = -1 \text{ mAdc}$	$V_{BE(SAT)}$ (Note 1)	--	0.9	Vdc

SMALL – SIGNAL CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	TYP.	MAX	UNIT
Out capacitance	$V_{CE} = -10 \text{ Vdc}$, $f = 1 \text{ MHz}$	C_{ob}	4	6	pF

Note:

1. Pulse test: Pulse width $\leq 380\mu\text{s}$, duty cycle $\leq 2\%$

FIG.1 - Current gain & collector current

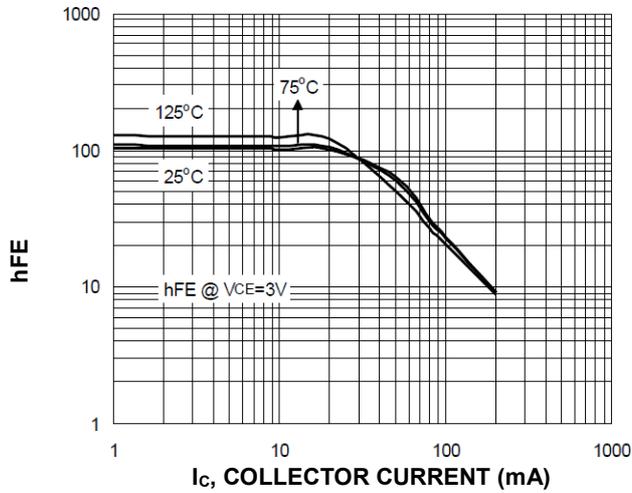


FIG.2 - Current gain & collector current

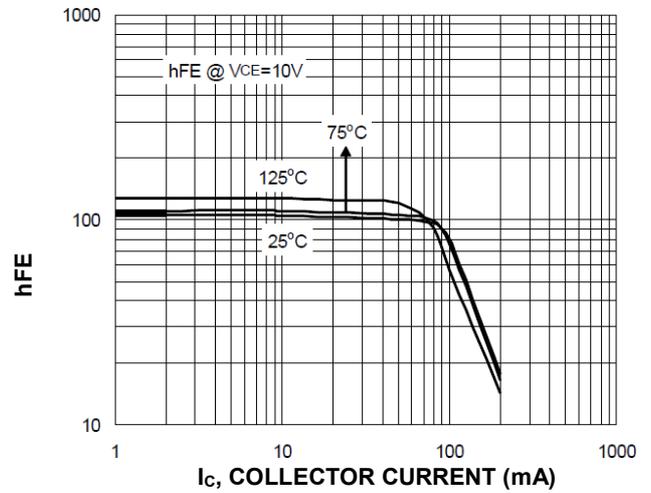


FIG.3 - Saturation voltage & collector current

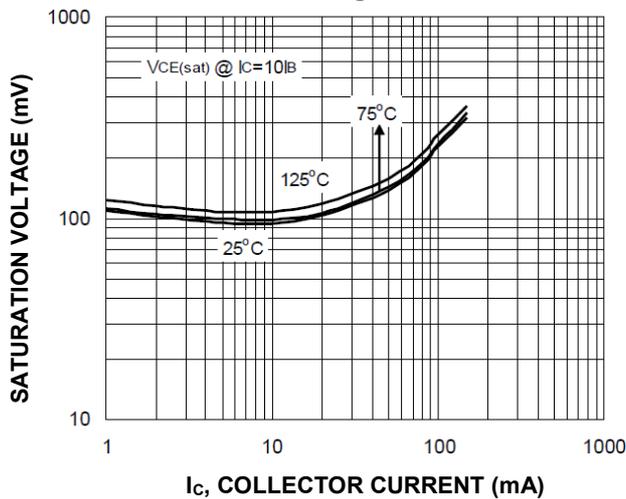


FIG.4 - Saturation voltage & collector current

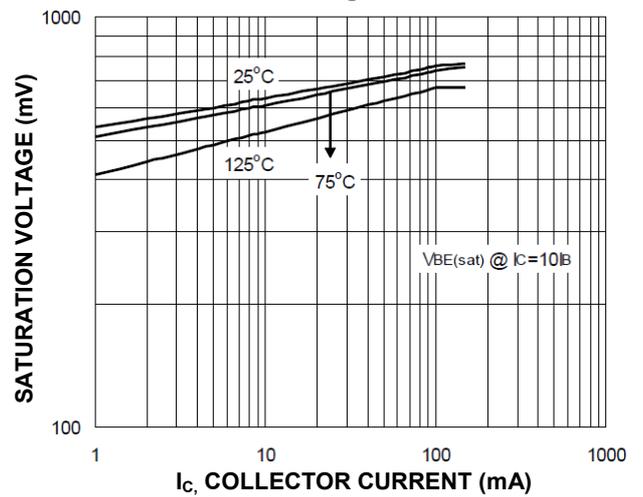
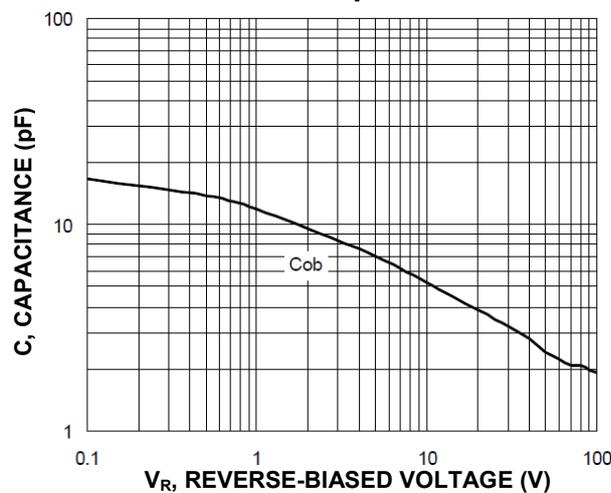
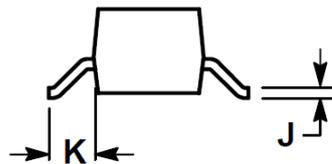
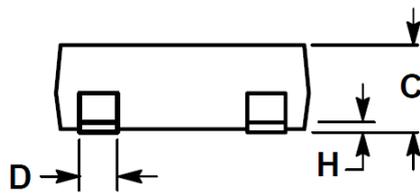
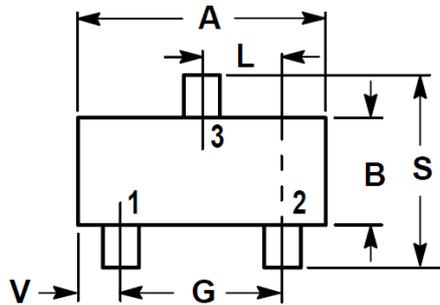


FIG.5 - Capacitance



Package Dimensions :

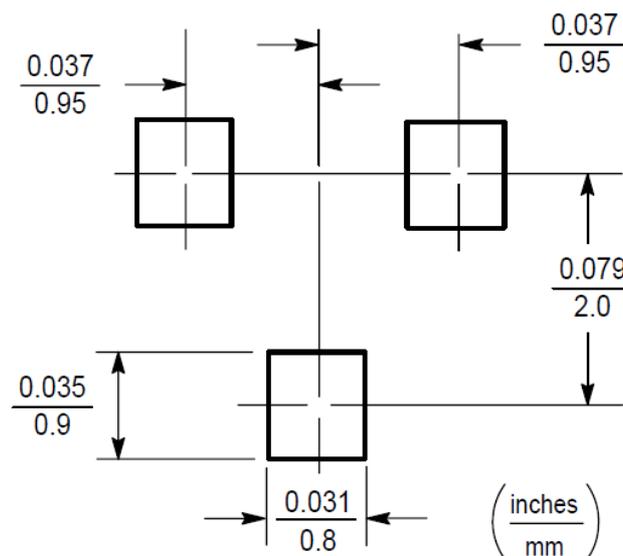
SOT-23



Dim.	INCHES		MILLIMETERS	
	Min.	Max.	Min.	Max.
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

- PIN:
 1. BASE
 2. EMITTER
 3. COLLECTOR

Recommended Footprint :



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