

PNP GENERAL PURPOSE TRANSISTOR

REVERSE VOLTAGE – 400 Volts
FORWARD CURRENT – 0.15 Amperes

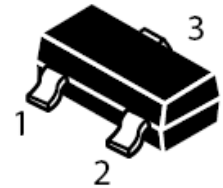
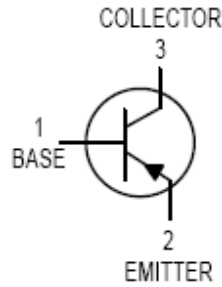
FEATURES

- 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	$I_C = -100 \mu\text{A}$, $I_E = 0$	$V_{(BR)CBO}$	-400	--	Vdc
Collector-emitter breakdown voltage	$I_C = -1 \text{mA}$, $I_B = 0$	$V_{(BR)CEO}$	-400	--	Vdc
Emitter-base breakdown voltage	$I_E = -10 \mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	-6	--	Vdc
Collector cutoff current	$V_{CB} = -400 \text{Vdc}$, $I_E = 0$	I_{CBO}	--	-0.1	μA
Emitter cutoff current	$V_{EB} = -6 \text{Vdc}$, $I_C = 0$	I_{EBO}	--	-0.1	μA
Collector cutoff current	$V_{CE} = -400 \text{Vdc}$, $V_{BE} = 0$	I_{CES}	--	-0.5	μA

ON CHARACTERISTICS

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

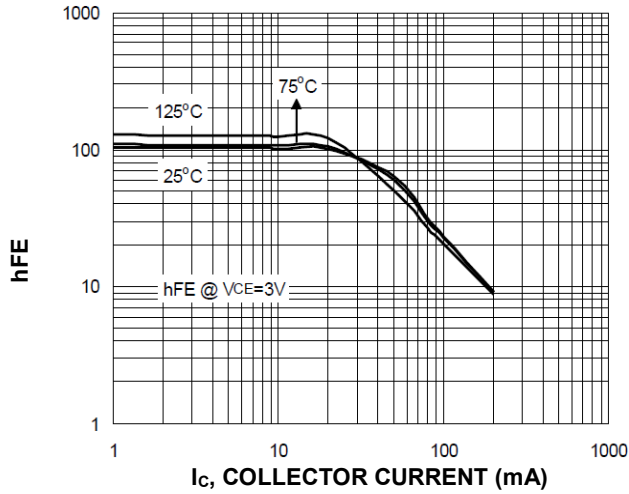


FIG.2 - Current gain & collector current

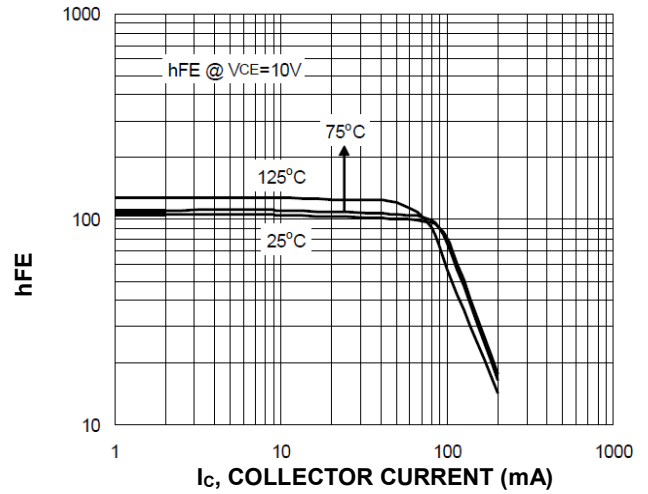


FIG.3 - Saturation voltage & collector current

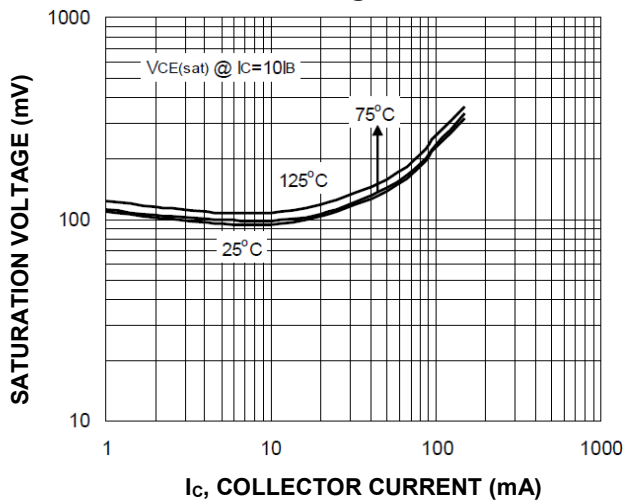


FIG.4 - Saturation voltage & collector current

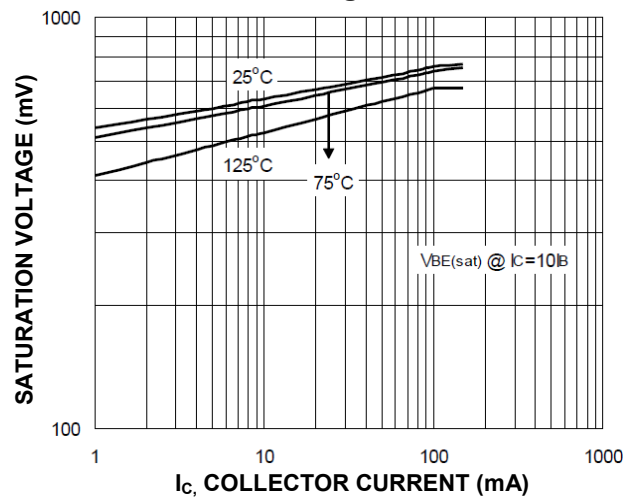
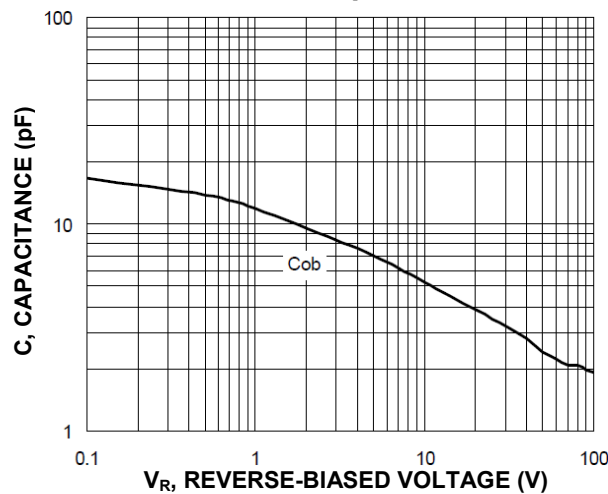
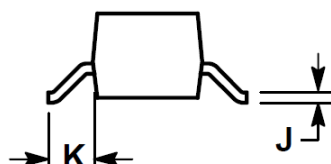
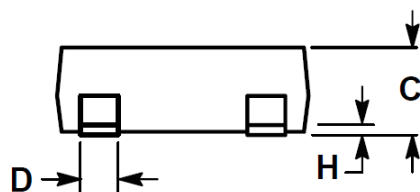
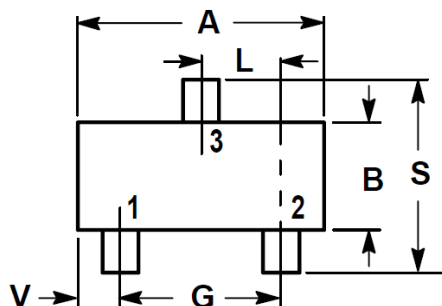


FIG.5 - Capacitance



Package Dimensions :

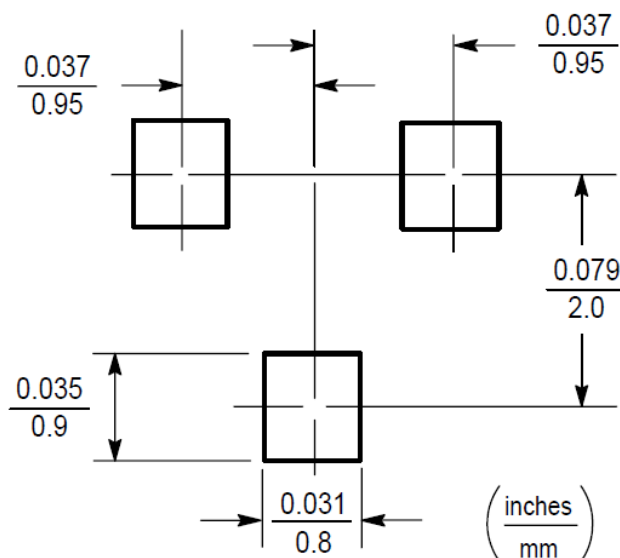
SOT-23



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 :



Important Notice and Disclaimer

LSC reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

LSC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does LSC assume any liability for application assistance or customer product design. LSC does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of LSC.

LSC products are not authorized for use as critical components in life support devices or systems without express written approval of LSC.

www.s-manuals.com