

MMBT4403

PNP GENERAL PURPOSE SWITCHING TRANSISTOR

VOLTAGE	40V	POWER	225mW
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FEATURES

PNP epitaxial silicon, planar design

Collector-emitter voltage $V_{CE} = -40V$

Collector current $I_C = -600mA$

Complimentary (NPN) device: MMBT4401

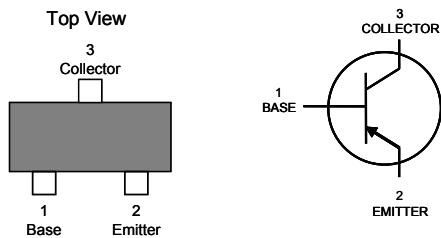
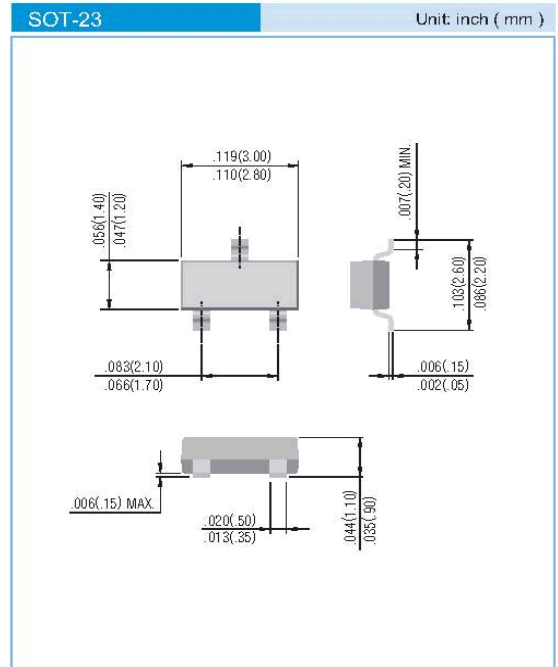
MECHANICAL DATA

Case: SOT-23

Terminals: Solderable per MIL-STD-202, Method 208

Approx Weight: 0.02 grams

Marking: M3A



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector - Emitter Voltage	V_{CE0}	-40	V
Collector - Base Voltage	V_{CB0}	-40	V
Emitter - Base Voltage	V_{EB0}	-5.0	V
Collector Current - Continuous	I_C	-600	mA
Max Power Dissipation (Note 1)	P_{TOT}	225	mW
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}C$

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	556	$^{\circ}C/W$

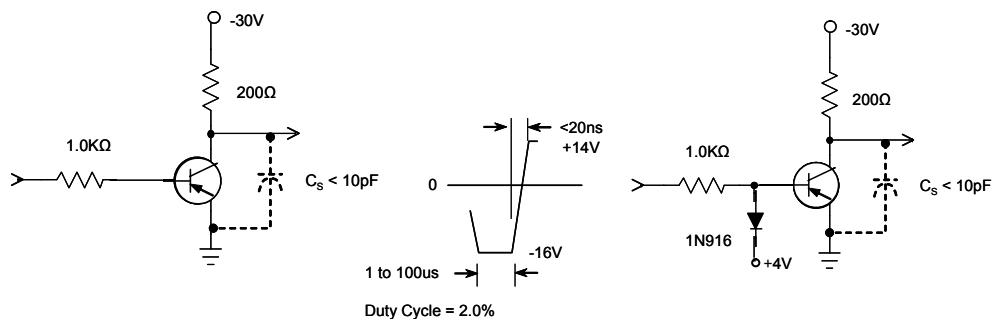
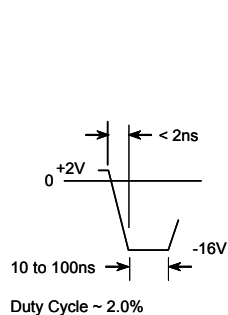
Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in. using minimum recommended pad.

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise noted)

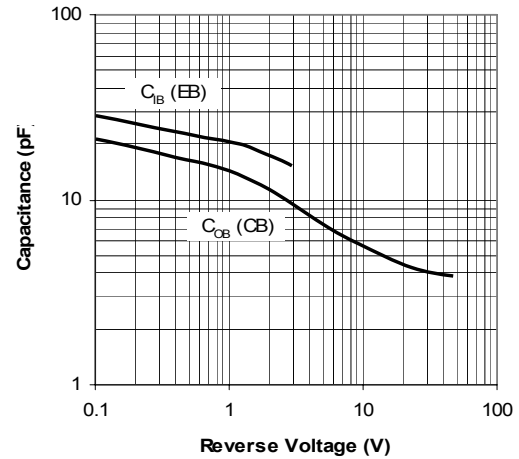
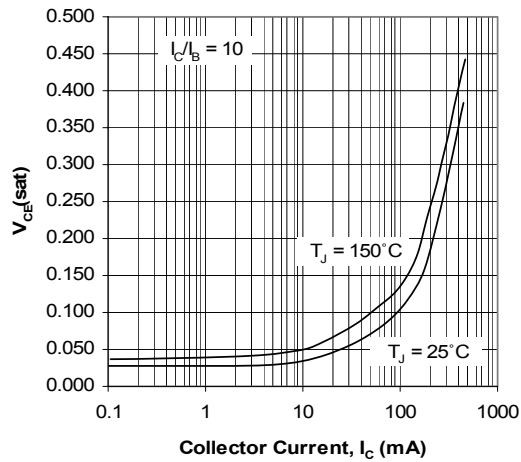
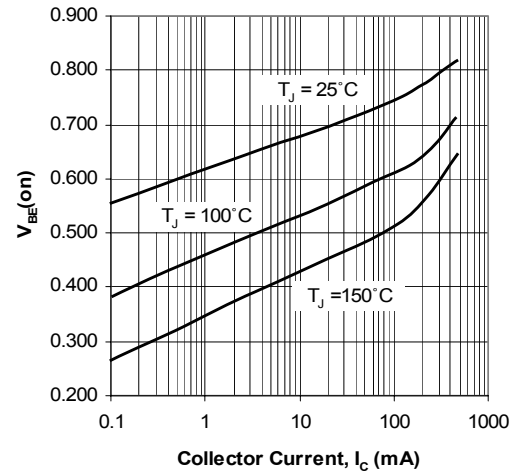
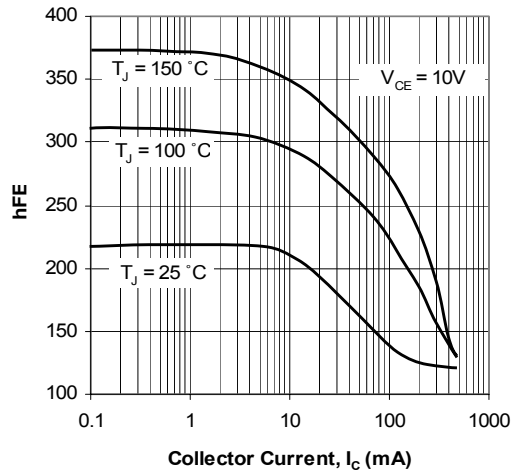
PARAMETER	SYMBOL	Test Condition	MIN.	TYP.	MAX.	UNIT
Collector - Emitter Breakdown Voltage	$V_{(BR)CE0}$	$I_C = -1.0\text{mA}$, $I_B = 0$	-40	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CB0}$	$I_C = -100\mu\text{A}$, $I_E = 0$	-40	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EB0}$	$I_E = -100\mu\text{A}$, $I_C = 0$	-5.0	-	-	V
Base Cutoff Current	I_{BEV}	$V_{CE} = -35\text{V}$, $V_{EB} = -0.4\text{V}$	-	-	-100	nA
Collector Cutoff Current	I_{CEX}	$V_{CE} = -35\text{V}$, $V_{EB} = -0.4\text{V}$	-	-	-100	nA
DC Current Gain	h_{FE}	$I_C = -0.1\text{mA}$, $V_{CE} = -1.0\text{V}$	30	-	-	-
		$I_C = -1.0\text{mA}$, $V_{CE} = -1.0\text{V}$	60	-	-	
		$I_C = -10\text{mA}$, $V_{CE} = -1.0\text{V}$	100	-	-	
		$I_C = -150\text{mA}$, $V_{CE} = -2.0\text{V}$	100	-	300	
		$I_C = -500\text{mA}$, $V_{CE} = -2.0\text{V}$	20	-	-	
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -150\text{mA}$, $I_B = -15\text{mA}$	-	-	-0.4	V
		$I_C = -500\text{mA}$, $I_B = -50\text{mA}$	-	-	-0.75	
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -150\text{mA}$, $I_B = -15\text{mA}$	-0.75	-	-0.95	V
		$I_C = -500\text{mA}$, $I_B = -50\text{mA}$	-	-	-1.3	
Current-Gain – Bandwidth Product	f_T	$I_C = -20\text{mA}$, $V_{CE} = -10\text{V}$, $f = 100\text{MHz}$	200	-	-	MHz
Collector - Base Capacitance	C_{CBO}	$V_{CB} = -5.0\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	-	-	8.5	pF
Emitter - Base Capacitance	C_{EBO}	$V_{CB} = -0.5\text{V}$, $I_C = 0$, $f = 1\text{MHz}$	-	-	30	pF
Delay Time	t_d	$V_{CC} = -30\text{V}$, $V_{BE} = -2.0\text{V}$, $I_C = -150\text{mA}$, $I_{B1} = -15\text{mA}$	-	-	15	ns
Rise Time	t_r		-	-	20	ns
Storage Time	t_s	$V_{CC} = -30\text{V}$, $I_C = -150\text{mA}$, $I_{B1} = I_{B2} = 15\text{mA}$	-	-	225	ns
Fall Time	t_f		-	-	30	ns

SWITCHING TIME EQUIVALENT TEST CIRCUITS



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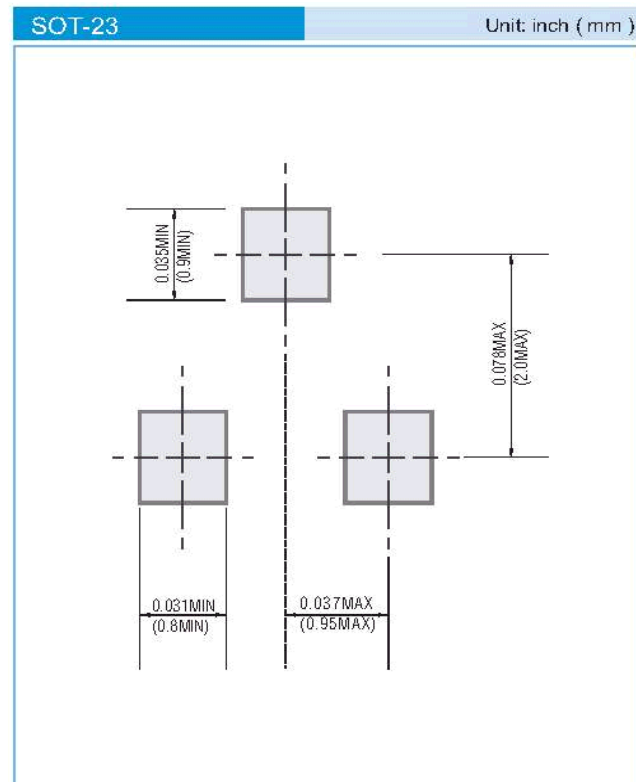
ELECTRICAL CHARACTERISTICS CURVES



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MMBT4403

RECOMMENDED PAD LAYOUT



ORDER INFORMATION

MMBT4403 T/R7 – 7” Reel, 3,000 Units/Reel
MMBT4403 T/R13 – 13” Reel, 10,000 Units/Reel

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