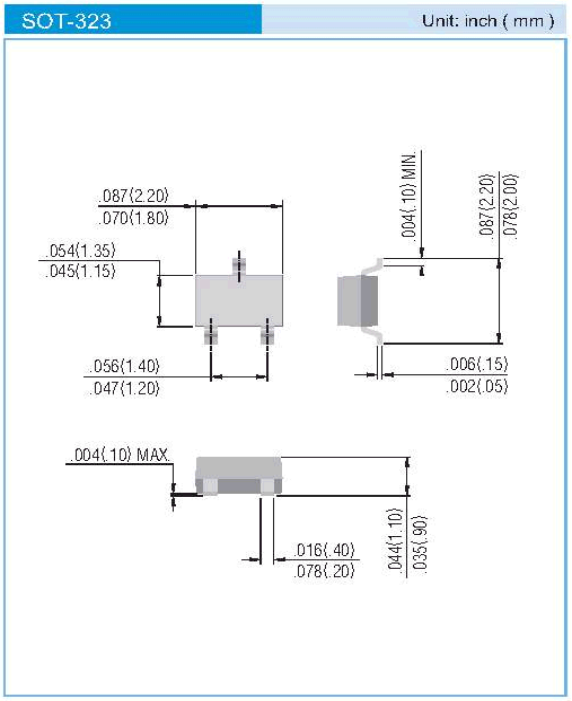
MMBT4403W

PNP GENERAL PURPOSE SWITCHING TRANSISTOR

VOLTAGE	40V	POWER	200mW



FEATURES

PNP epitaxial silicon, planar design

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

Collector current I_C =-600mA

Complimentary (NPN) device: MMBT4401W

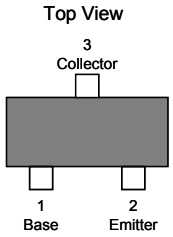
MECHANICAL DATA

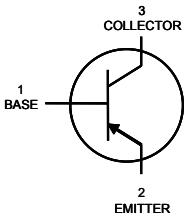
Case: SOT-323

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

Approx Weight: 0.02 grams

Marking: M3W





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}	200	mW
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	℃

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance , Junction to Ambient (Note 1)	$R_{\theta JA}$	625	℃/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˚C, unless otherwise noted)

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

SWITCHING TIME EQUIVALENT TEST CIRCUITS

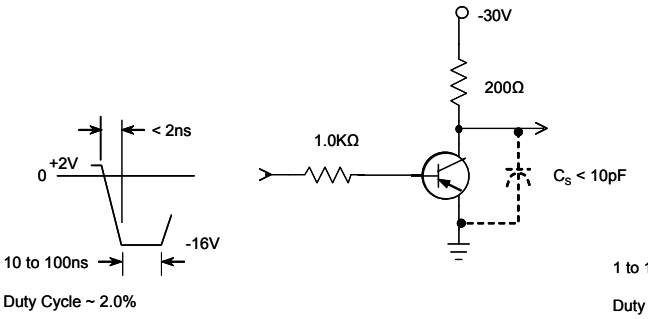


Fig. 1. Turn-On Time

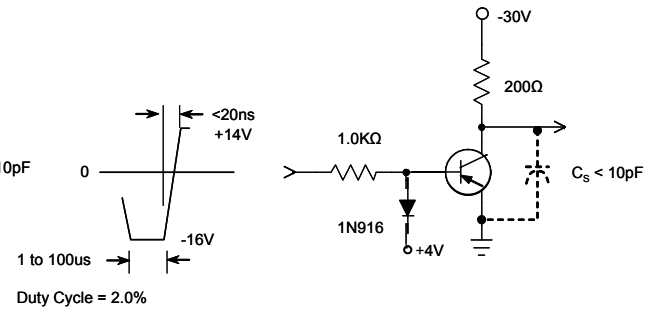


Fig. 2. Turn-Off Time

MMBT4403W

ELECTRICAL CHARACTERISTICS CURVES

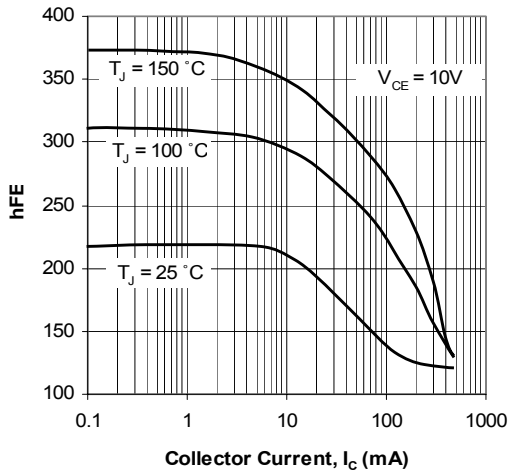


Fig. 3. Typical h_{FE} vs Collector Current

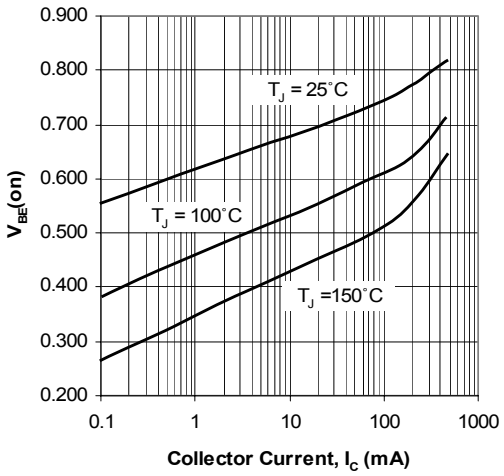


Fig. 4. Typical V_{BE} vs Collector Current

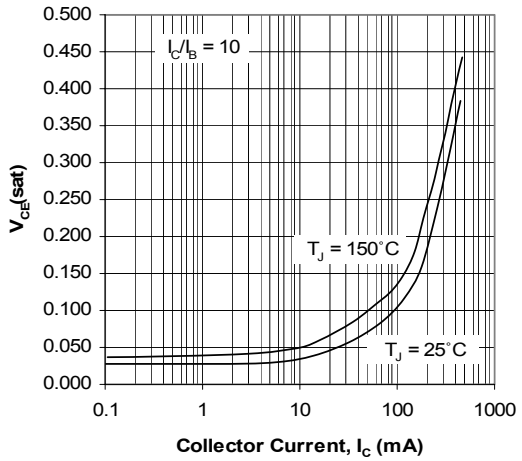


Fig. 5. Typical V_{CE} (sat) vs Collector Current

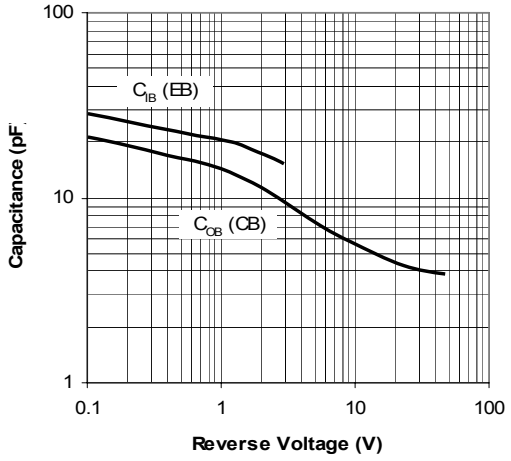
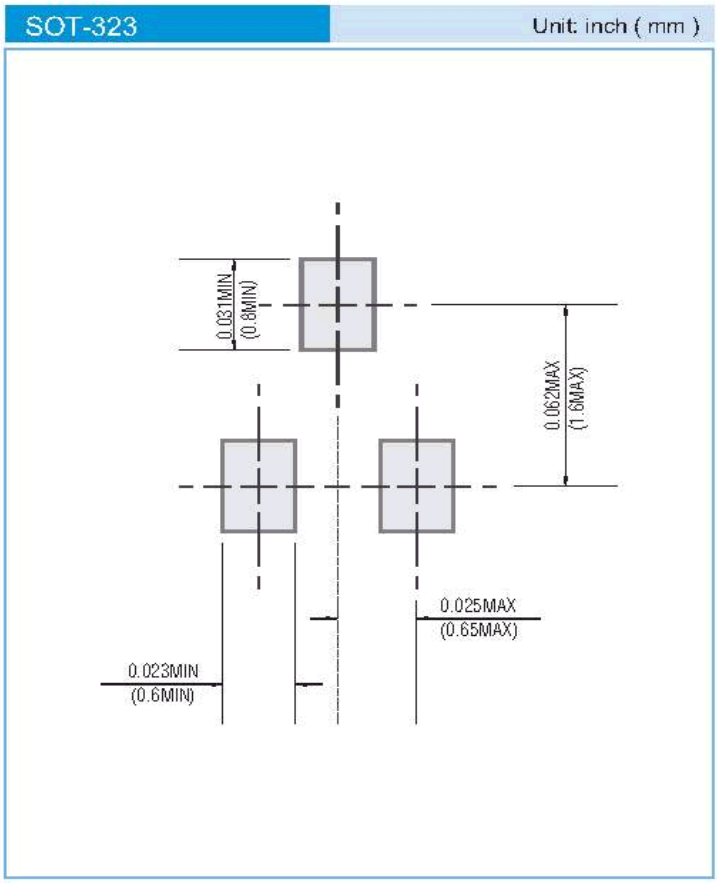


Fig. 6. Typical Capacitances vs Reverse Voltage

MMBT4403W

RECOMMENTED PAD LAYOUT



ORDER INFORMATION

MMBT4403W T/R7 – 7” Reel, 3,000 Units/Reel
MMBT4403W T/R13 – 13” Reel, 10,000 Units/Reel

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