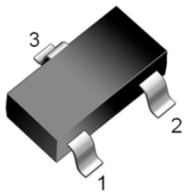
REPLACEMENT TYPE :MMBT4403

FEATURES

- Switching Transistor



SOT-23 MARKING:2T

1: BASE 2:EMITTER 3: COLLECTOR

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current-Continuous	I_C	-600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	I_C=-100μA ,I_E=0	-40			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=-1mA ,I_B=0	-40			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=-100μA,I_C=0	-5			V
Collector Cut-off current	I_{CEX}	V_{CE}=-35V,$V_{EB(off)}$=0.4V			-0.1	μA
Collector Cut-off Current	I_{CBO}	V_{CB}=-35V,I_E=0			-0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=-4V,I_C=0			-0.1	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=-1V,I_C=-0.1mA	30			
	$h_{FE(2)}$	V_{CE}=-1V,I_C=-1mA	60			
	$h_{FE(3)}$	V_{CE}=-2V,I_C=-10mA	100			
	$h_{FE(4)}$	V_{CE}=-2V,I_C=-150Ma	100		300	
	$h_{FE(5)}$	V_{CE}=2V,I_C=500mA	20			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-150mA,I_B=-15mA			-0.4	V
		I_C=-500mA,I_B=-50mA			-0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=-150mA,I_B=-15mA			-0.95	V
		I_C=-500mA,I_B=-50mA			-1.3	V
Transition Frequency	f_T	V_{CE}=-10V,I_C=-20mA,f=100MHz	200			MHz
Delay Time	T_D	V_{CC}=-30V,V_{BE}=-0.5V 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				60	nS

Typical Characteristics

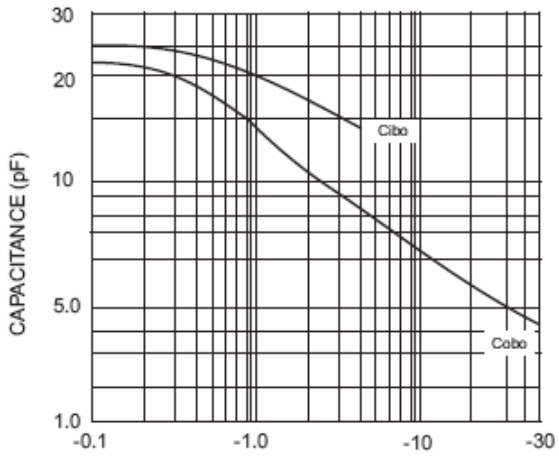


Fig. 1 Typical Capacitance

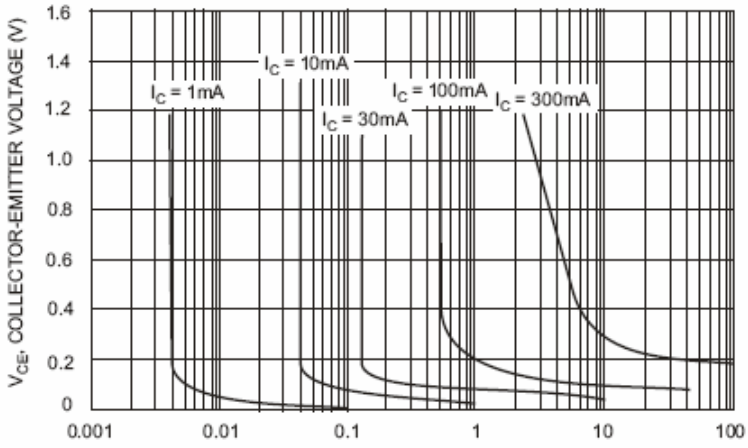


Fig. 2 Typical Collector Saturation Region

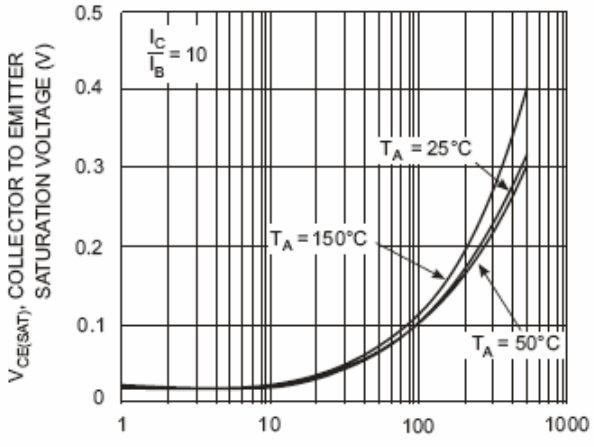


Fig. 3 Collector Emitter Saturation Voltage vs. Collector Current

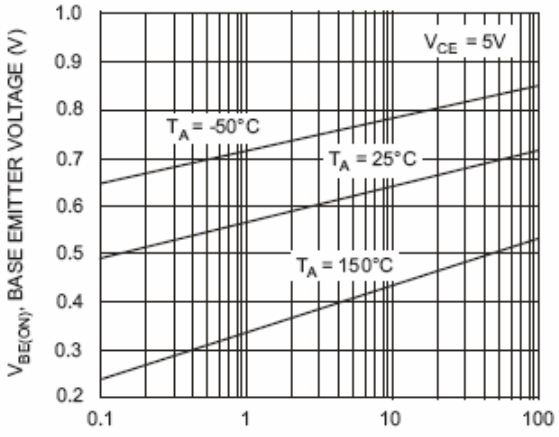
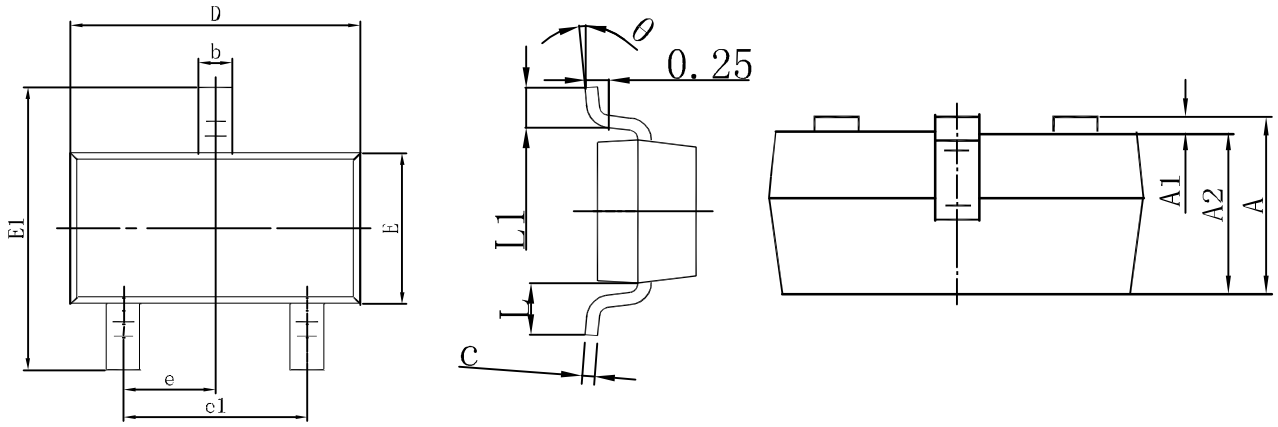


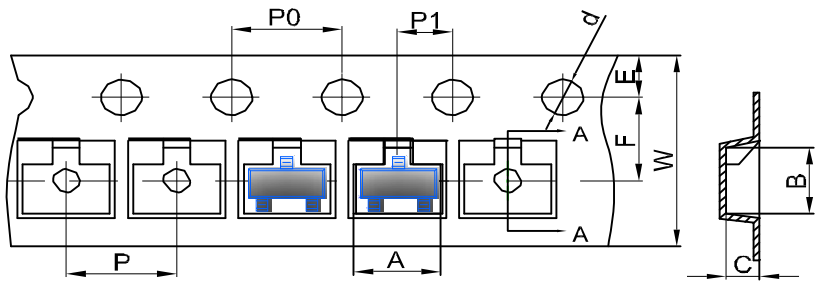
Fig. 4 Base-Emitter Voltage vs. Collector Current

SOT-23 Package Outline Dimensions



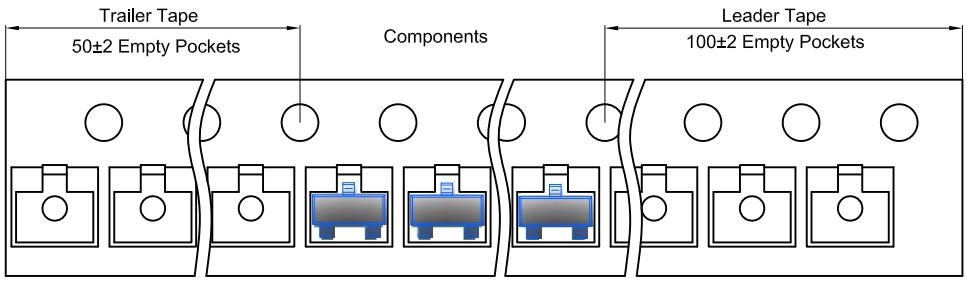
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Embossed Carrier Tape

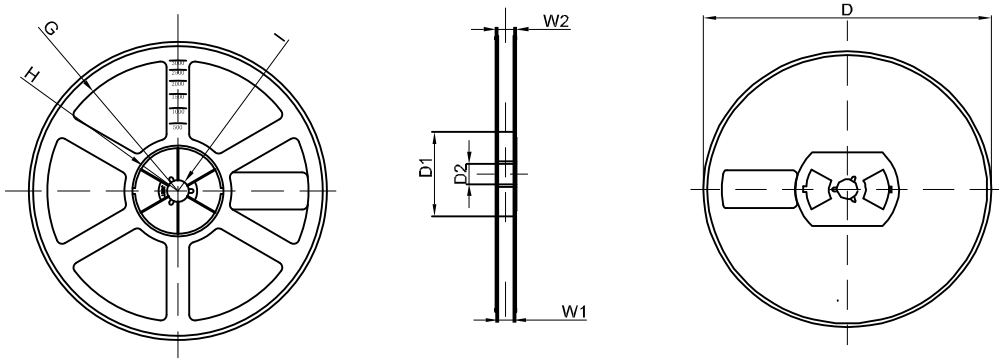


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-23 Tape Leader and Traller



SOT-23 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7” DIA	φ178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1