

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead free

FEATURES

- Switching Transistor

MARKING

2X

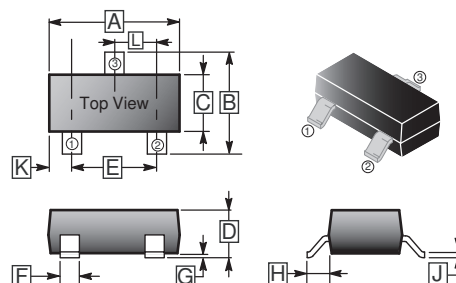
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

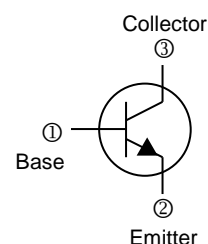
ORDER INFORMATION

Part Number	Type
MMBP4401-C	Lead (Pb)-free and Halogen-free

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.65	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.10	1.80	J	0.05	0.26
D	0	1.40	K	0.60	REF.
E	1.70	2.30	L	0.95	TYP.
F	0.28	0.55			



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

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	I _c	0.6	A
Collector Power Dissipation	P _c	300	mW
Thermal Resistance from Junction-Ambient	R _{θJA}	417	°C/W
Junction, Storage Temperature Range	T _J , T _{STG}	150, -55~150	°C

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60	-	-	V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40	-	-		$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	-	-		$I_E=100\mu\text{A}, I_C=0$
Collector Cut-off Current	I_{CBO}	-	-	100	nA	$V_{CB}=50\text{V}, I_E=0$
Collector Cut-off Current	I_{CEX}	-	-	100		$V_{CE}=35\text{V}, V_{BE}=0.4\text{V}$
Emitter Cut-off Current	I_{EBO}	-	-	100		$V_{EB}=5\text{V}, I_C=0$
DC Current Gain	h_{FE}	20	-	-		$V_{CE}=1\text{V}, I_C=0.1\text{mA}$
		40	-	-		$V_{CE}=1\text{V}, I_C=1\text{mA}$
		80	-	300		$V_{CE}=1\text{V}, I_C=10\text{mA}$
		100	-	-		$V_{CE}=1\text{V}, I_C=150\text{mA}$
		40	-	-		$V_{CE}=2\text{V}, I_C=500\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=150\text{mA}, I_B=15\text{mA}$
		-	-	0.75		$I_C=500\text{mA}, I_B=50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.75	-	0.95	V	$I_C=150\text{mA}, I_B=15\text{mA}$
		-	-	1.2		$I_C=500\text{mA}, I_B=50\text{mA}$
Transition Frequency	f_T	250	-	-	MHz	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=100\text{MHz}$
Collector-Base Capacitance	C_{cb}	-	6.5	-	pF	$V_{CB}=50\text{V}, I_E=0, f=1\text{MHz}$
Emitter-Base Capacitance	C_{eb}	-	30	-		$V_{BE}=0.5\text{V}, I_C=0, f=1\text{MHz}$
Delay Time	t_d	-	15	-	nS	$V_{CC}=30\text{V}, V_{BE}=0.2\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$
Rise Time	t_r	-	20	-		
Storage Time	t_s	-	225	-		
Fall Time	t_f	-	30	-		

TYPICAL CHARACTERISTICS

