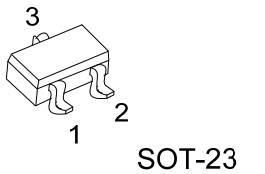
MMBT5401

PNP SILICON TRANSISTOR

HIGH VOLTAGE SWITCHING TRANSISTOR



SOT-23
(JEDEC TO-236)

■ FEATURES

*Collector-Emitter Voltage: V_{CEO}=-150V
*High Current Gain

■ ORDERING INFORMATION

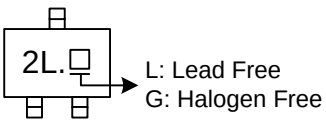
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT5401L-x-AE3-R	MMBT5401G-x-AE3-R	SOT-23	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

MMBT5401G-x-AE3-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) AE3: SOT-23
(3)Rank	(3) x: refer to Classification of h_{FE}
(4)Green Package	(4) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUATE MAXIUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector -Base Voltage	V_{CBO}	-160	V
Collector -Emitter Voltage	V_{CEO}	-150	V
Emitter -Base Voltage	V_{EBO}	-5	V
DC Collector Current	I_C	-600	mA
Power Dissipation	P_D	350	mW
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=-100μA, I_E=0	-160			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=-1mA, I_B=0	-150			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=-10μA, I_C=0	-5			V
Collector Cut-off Current	I_{CBO}	V_{CB}=-120V, I_E=0			-50	nA
Emitter Cut-off Current	I_{EBO}	V_{BE}=-3V, I_C=0			-50	nA
DC Current Gain(Note)	h_{FE}	V_{CE}=-5V, I_C=-1mA	80			
		V_{CE}=-5V, I_C=-10mA	80	160	400	
		V_{CE}=-5V, I_C=-50mA	80			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=-10mA, I_B=-1mA			-0.2	V
		I_C=-50mA, I_B=-5mA			-0.5	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=-10mA, I_B=-1mA			-1	V
		I_C=-50mA, I_B=-5mA			-1	
Current Gain Bandwidth Product	f_T	V_{CE}=-10V, I_C=-10mA, f=100MHz	100		300	MHz
Output Capacitance	C_{OB}	V_{CB}=-10V, I_E=0, f=1MHz			6.0	pF
Noise Figure	NF	I_C=-0.25mA, V_{CE}=-5V R_S=1kΩ, f=10Hz ~ 15.7kHz			8	dB

Note: Pulse test: P_W<300μs, Duty Cycle<2%

■ CLASSIFICATION OF h_{FE}

RANK	A	B	C
RANGE	80-170	150-240	200-400

TYPICAL CHARACTERICS

Fig.1 Collector Output Capacitance

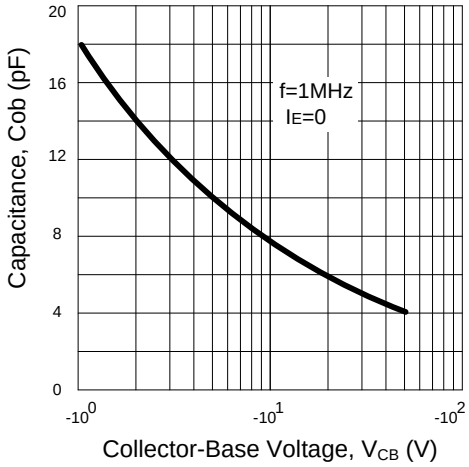


Fig.2 DC Current Gain

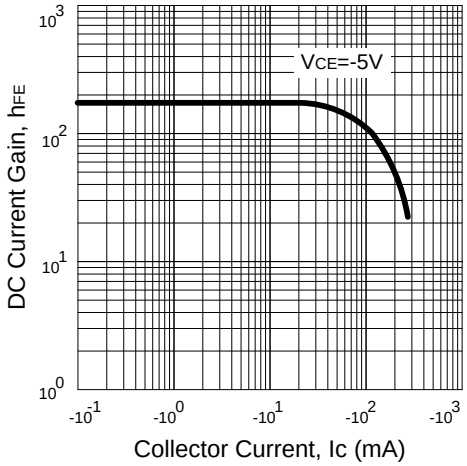


Fig.3 Base-Emitter on Voltage

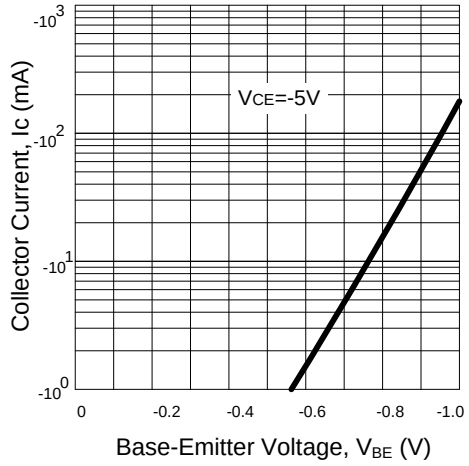


Fig.4 Saturation Voltage

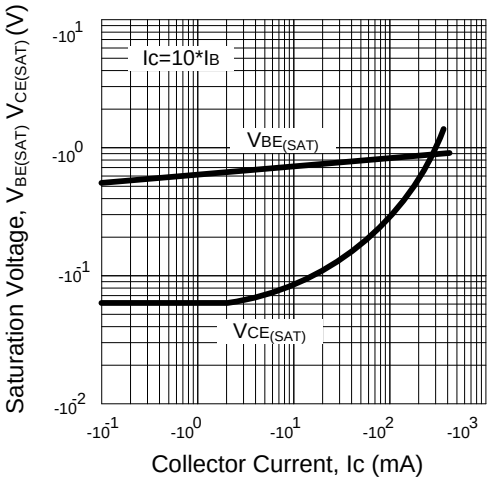


Fig.5 Current Gain-Bandwidth Product