



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

SOT-23 Plastic-Encapsulate Transistors

MMBT589 TRANSISTOR (PNP)

FEATURES

- High current surface mount PNP silicon switching transistor for Load management in portable applications

MARKING :589

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-50	V
V_{CEO}	Collector-Emitter Voltage	-30	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-1	A
P_C	Collector Power Dissipation	310	mW
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	403	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-30\text{V}, I_E=0$			-0.1	μA
Collector-emitter cut-off current	I_{CES}	$V_{CES}=-30\text{V}$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$			-0.1	μA
DC current gain	h_{FE1}	$V_{CE}=-2\text{V}, I_C=-1\text{mA}$	100			
	h_{FE2}	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$	100		300	
	h_{FE3}	$V_{CE}=-2\text{V}, I_C=-1\text{A}$	80			
	h_{FE4}	$V_{CE}=-2\text{V}, I_C=-2\text{A}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$			-0.25	V
	$V_{CE(sat)2}$	$I_C=-1\text{A}, I_B=-100\text{mA}$			-0.3	V
	$V_{CE(sat)3}$	$I_C=-2\text{A}, I_B=-200\text{mA}$			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-1\text{A}, I_B=-100\text{mA}$			-1.2	V
Base-emitter Turn-on voltage	$V_{BE(on)}$	$V_{CE}=-2\text{V}, I_C=-1\text{A}$			-1.1	V
Transition frequency	f_T	$V_{CE}=-5\text{V}, I_C=-100\text{mA}, f=100\text{MHz}$	100			MHz
Collector Output Capacitance	C_{ob}	$f=1\text{MHz}$			15	pF

Typical Characteristics

MMBT589

