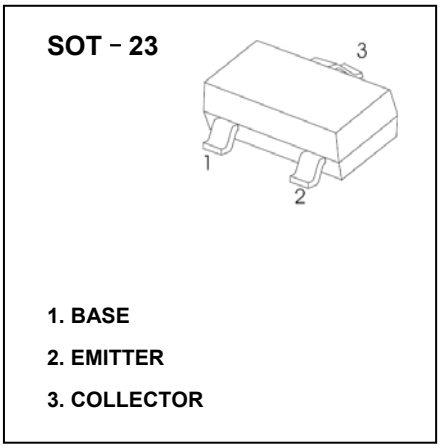
DONGGUAN NANJING ELECTRONICS LTD.,

SOT-23 Plastic-Encapsulate Transistors

MMBT4401 TRANSISTOR (NPN)



FEATURES

- Switching Transistor

MARKING:2X

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

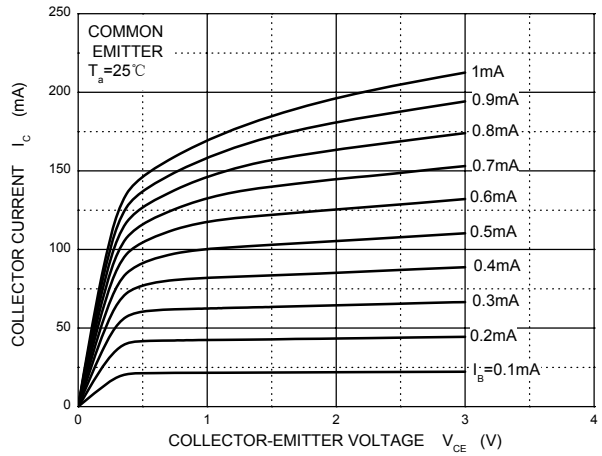
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
P_C	Collector Power Dissipation	300	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	417	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55～+150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

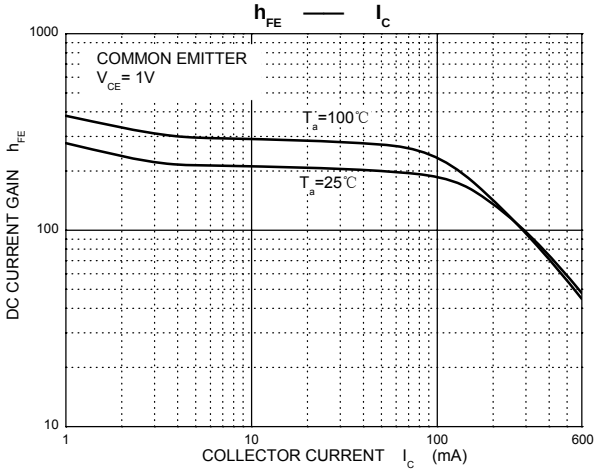
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA, I_C=0	6			V
Collector cut-off current	I_{CEO}	V_{CE}=30V, I_B=0			100	nA
Collector cut-off current	I_{CBO}	V_{CB}= 50V, I_E=0			100	nA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0			100	nA
DC current gain	h_{FE}	V_{CE}=1V, I_C=150mA	100		300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=150mA, I_B=15mA			0.4	V
Collector-emitter saturation voltage	$V_{BE(sat)}$	I_C=150mA, I_B=15mA			0.95	V
Transition frequency	f_T	V_{CE}=10V,I_C=20mA, f=100MHz	250			MHz
Delay time	t_d	V_{CC}=30V, $V_{BE(off)}$=-2V I_C=150mA,			15	ns
Rise time	t_r	I_{B1}=15mA			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

Typical Characteristics MMBT4401

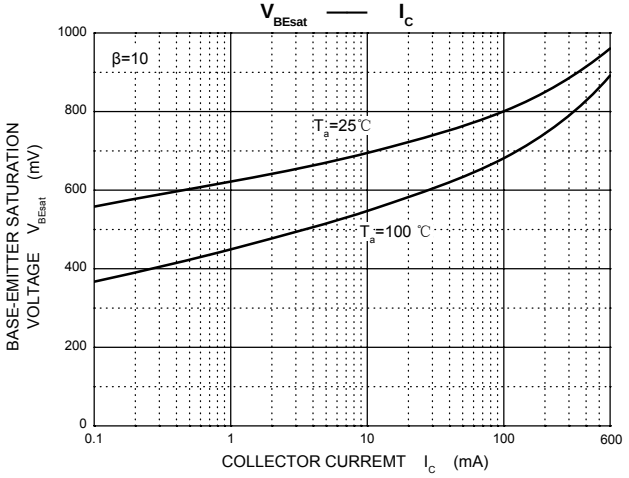
Static Characteristic



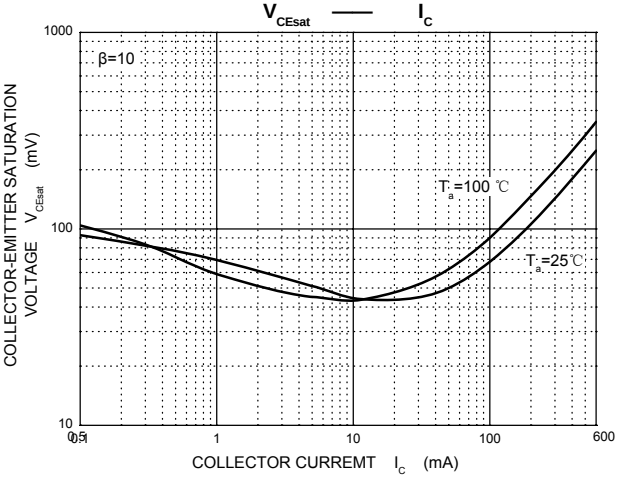
h_{FE} —— I_C



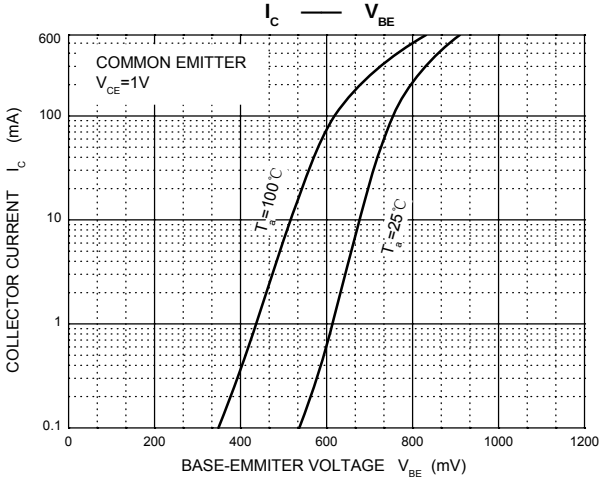
V_{BEsat} —— I_C



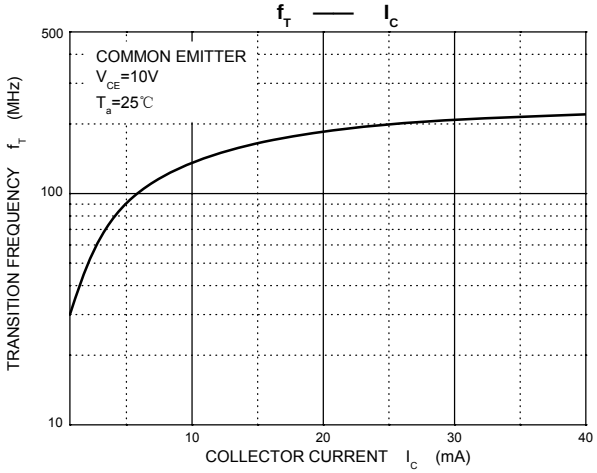
V_{CEsat} —— I_C



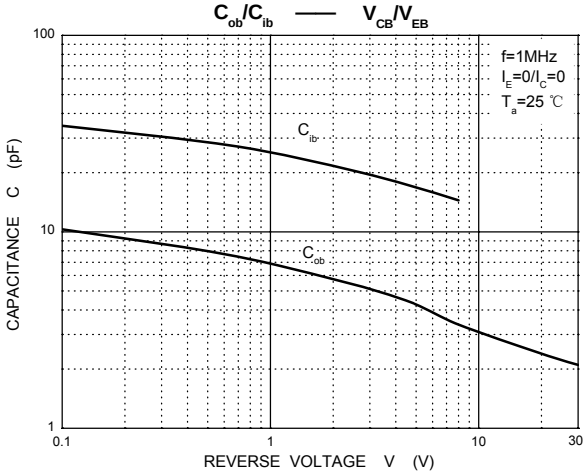
I_C —— V_{BE}



f_T —— I_C



C_{ob}/C_{ib} —— V_{CB}/V_{EB}



P_C —— T_a