



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

SOT-363 Plastic-Encapsulate Transistors

MMDT4401

Multi-Chip TRANSISTOR (NPN)

SOT-363

FEATURES

Power dissipation

$$P_{CM}: 0.2 \text{ W (Tamb=25}^{\circ}\text{C)}$$

Collector current

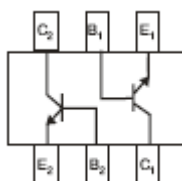
$$I_{CM}: 0.6 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO}: 60 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55^{\circ}\text{C to } +150^{\circ}\text{C}$$



MRKING:K2X

ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=50\text{V}$, $I_E=0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=35\text{V}$, $I_B=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=1\text{V}$, $I_C=0.1\text{mA}$	20			
	$h_{FE(2)}$	$V_{CE}=1\text{V}$, $I_C=1\text{mA}$	40			
	$h_{FE(3)}$	$V_{CE}=1\text{V}$, $I_C=10\text{mA}$	80			
	$h_{FE(4)}$	$V_{CE}=1\text{V}$, $I_C=150\text{mA}$	100		300	
	$h_{FE(5)}$	$V_{CE}=2\text{V}$, $I_C=500\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=150\text{mA}$, $I_B=15\text{mA}$			0.4	V
	$V_{CE(sat)2}$	$I_C=500\text{mA}$, $I_B=50\text{mA}$			0.75	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=150\text{mA}$, $I_B=15\text{mA}$	0.75		0.95	V
	$V_{BE(sat)2}$	$I_C=500\text{mA}$, $I_B=50\text{mA}$			1.2	V
Transition frequency	f_T	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$ $f=100\text{MHz}$	250			MHz
Output Capacitance	C_{ob}	$V_{CB}=5\text{V}$, $I_E=0$ $f=1\text{MHz}$			6.5	pF
Delay time	t_d	$V_{CC}=30\text{V}$, $V_{BE}=2\text{V}$			15	nS
Rise time	t_r	$I_C=150\text{mA}$, $I_{B1}=15\text{mA}$			20	nS
Storage time	t_s	$V_{CC}=30\text{V}$, $I_C=150\text{mA}$			225	nS
Fall time	t_f	$I_{B1}=I_{B2}=15\text{mA}$			30	nS

Typical Characteristics

MMDT4401

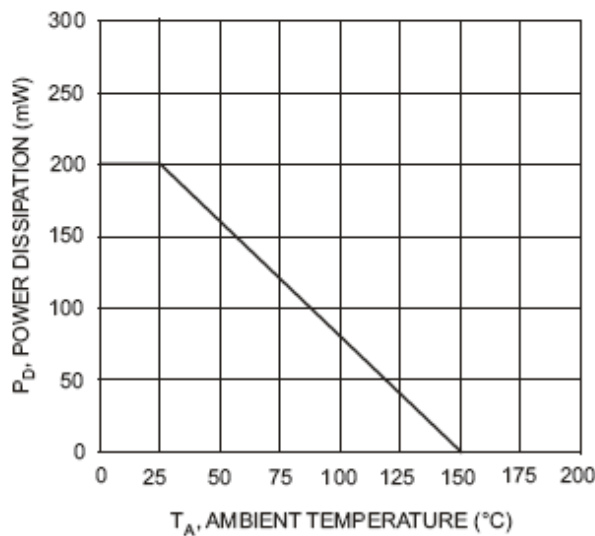


Fig. 1 Max Power Dissipation vs Ambient Temperature

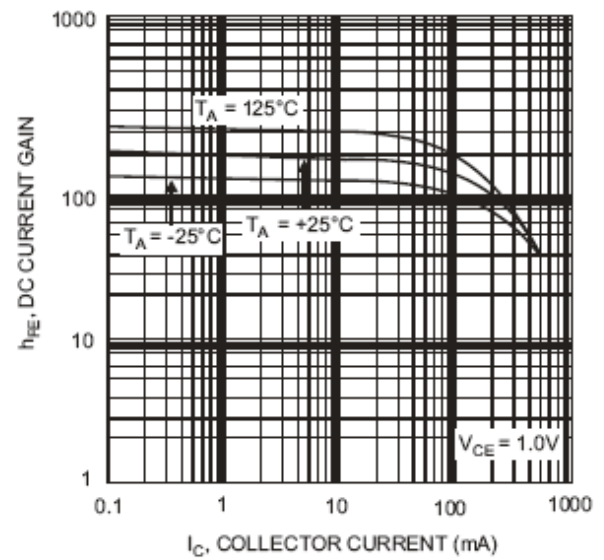


Fig. 2 Typical DC Current Gain vs Collector Current

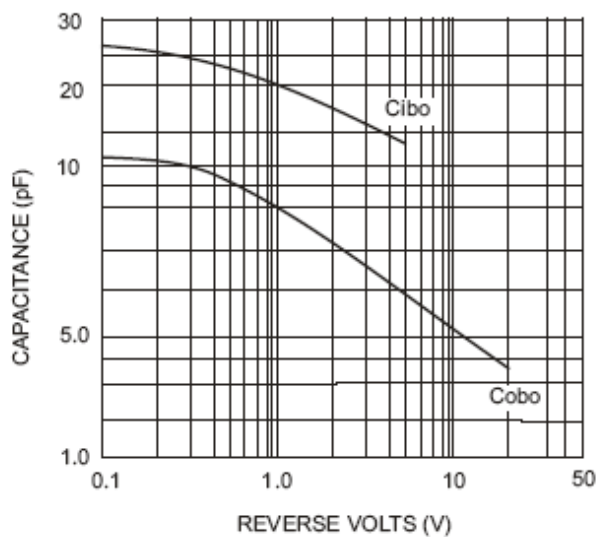


Fig. 3 Typical Capacitance

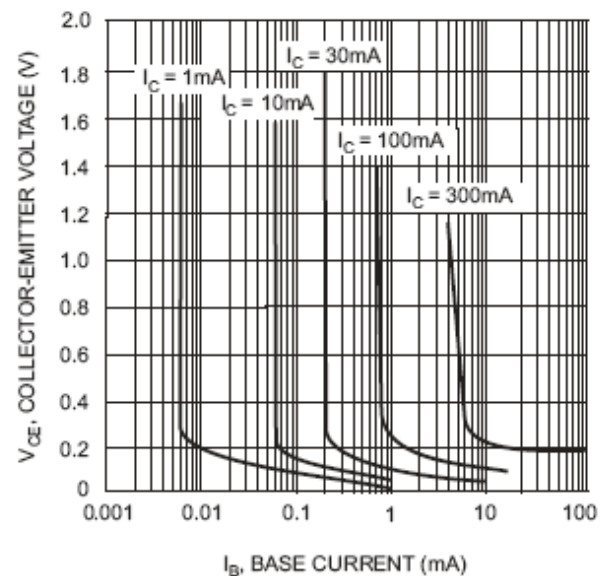


Fig. 4 Typical Collector Saturation Region

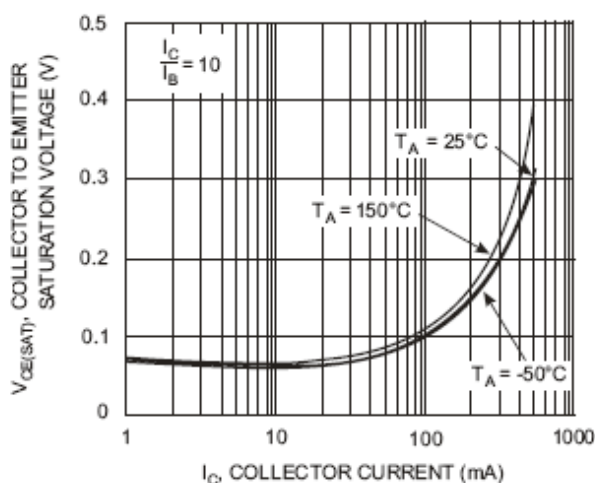


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

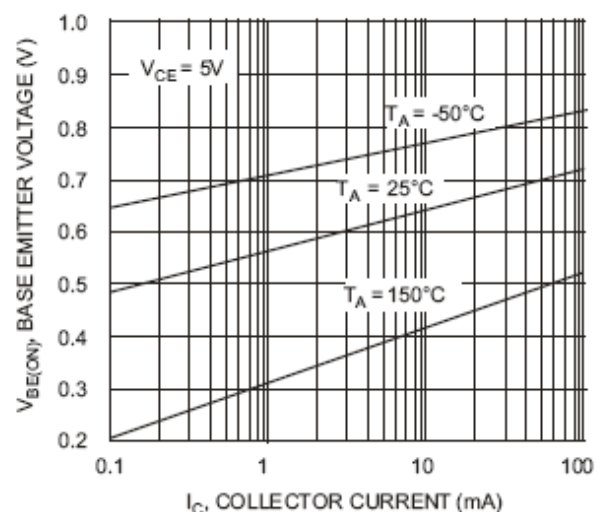


Fig. 6 Base Emitter Voltage vs. Collector Current