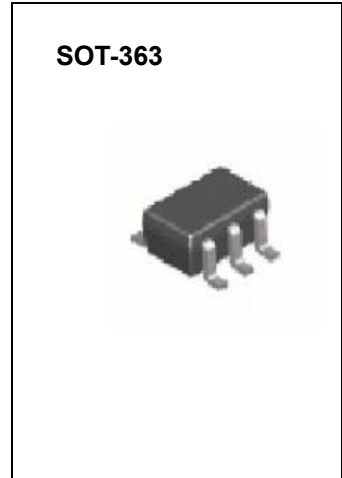# SOT-363 Plastic-Encapsulate Transistors

MMDT4401   Multi-Chip TRANSISTOR (NPN)

SOT-363

FEATURES

Power dissipation

P_{CM}: 0.2 W (Tamb=25℃)

Collector current

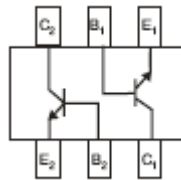I_{CM}: 0.6 A

Collector-base voltage

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

Operating and storage junction temperature range

T_J, T_{stg}: -55℃ to +150℃

MRKING:K2X

ELECTRICAL CHARACTERISTICS (Tamb=25℃   unless   otherwise   specified)

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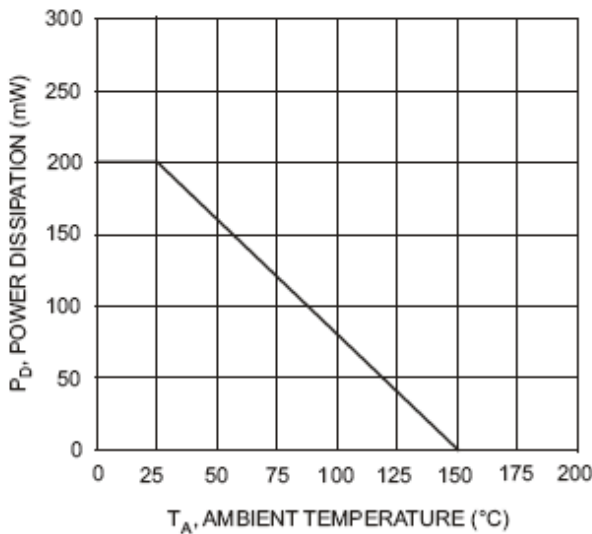
Fig. 1 Max Power Dissipation vs Ambient Temperature
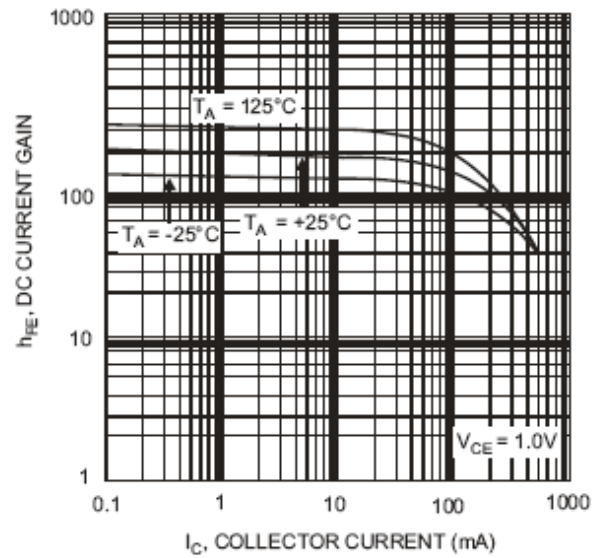

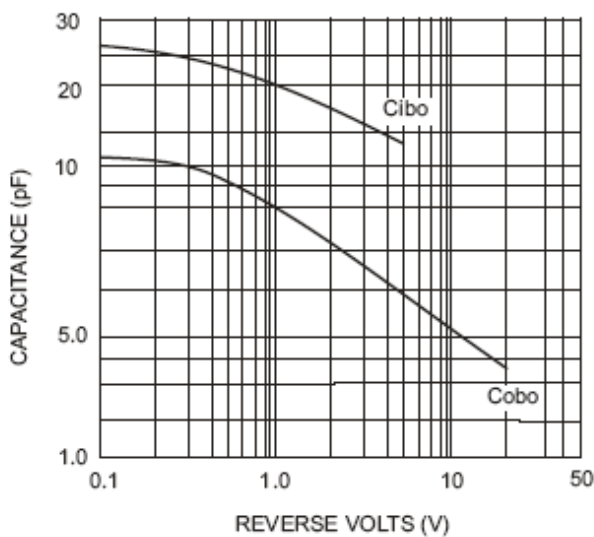Fig. 2 Typical DC Current Gain vs Collector Current
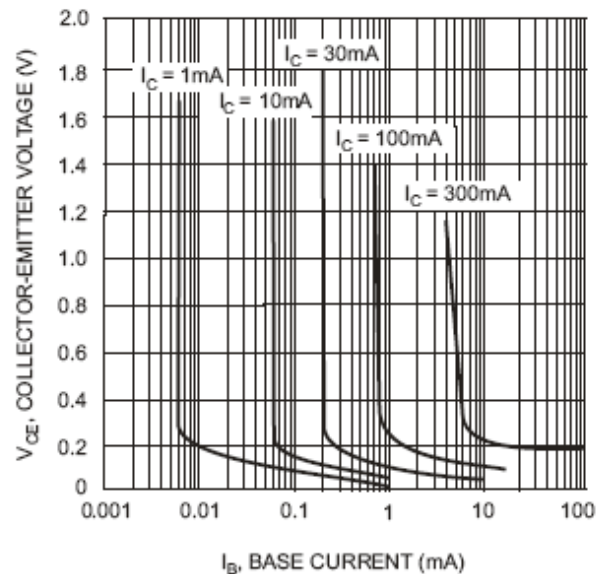

Fig. 3 Typical Capacitance

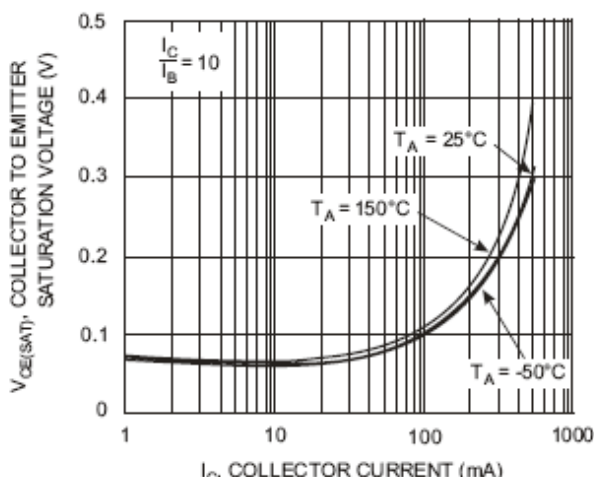Fig. 4 Typical Collector Saturation Region
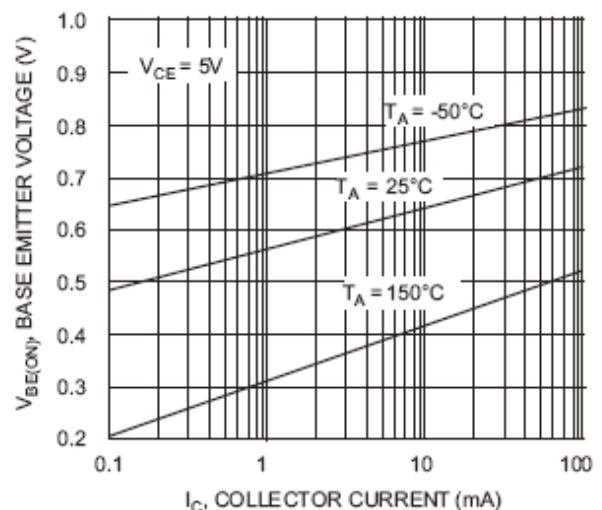

Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

Fig. 6 Base Emitter Voltage vs. Collector Current