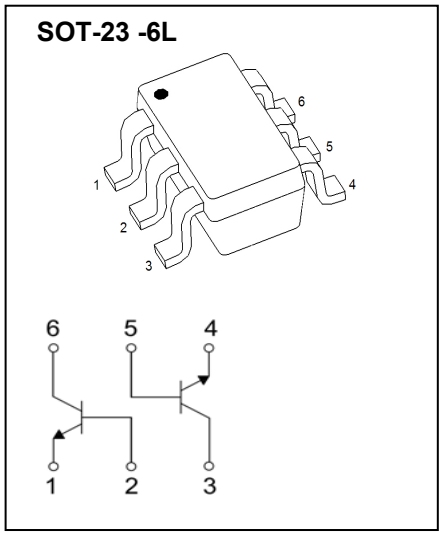
Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+NPN)



FEATURE

Complementary PNP Type available MMDT2907AF

MARKING: K1P

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Power Dissipation	300	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

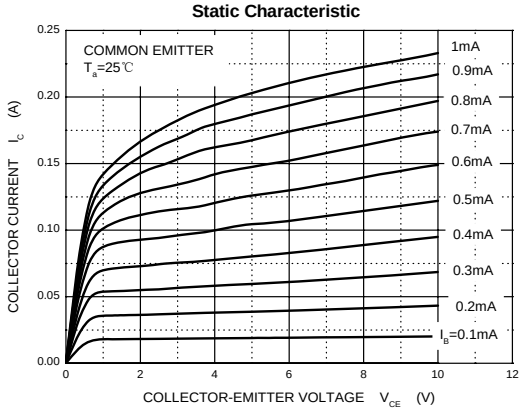
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 10μA, I_E=0	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 10mA, I_B=0	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA.I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}= 60V, I_E=0		10	nA
Collector cut-off current	I_{CEX}	V_{CE}= 60V,$V_{EB(off)}$=3V		10	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 3 V, I_C=0		10	nA
DC current gain	$h_{FE(1)}$	V_{CE}=10V, I_C= 0.1mA	35		
	$h_{FE(2)}$	V_{CE}=10V, I_C= 1mA	50		
	$h_{FE(3)}$	V_{CE}=10V, I_C= 10mA	75		
	$h_{FE(4)}$	V_{CE}=10V, I_C= 150mA	100	300	
	$h_{FE(5)}$	V_{CE}=10V, I_C= 500mA	40		
	$h_{FE(6)}$	V_{CE}=1V, I_C= 150mA	35		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	I_C=150mA, I_B= 15mA		0.3	V
	$V_{CE(sat)2}$	I_C=500mA, I_B= 50mA		1	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	I_C=150mA, I_B=15mA	0.6	1.2	V
	$V_{BE(sat)2}$	I_C=500mA, I_B= 50mA		2	V
Transition frequency	f_T	V_{CE}=20V, I_C= 20mA, f=100MHz	300		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0,f=1MHz		8	pF
Input Capacitance	C_{ib}	V_{EB}=0.5V,I_C= 0,f=1MHz		25	pF
Noise Figure	NF	V_{CE}=10V, I_C=100μA, f=1KHz,Rs=1KΩ		4	dB

Switching characteristics

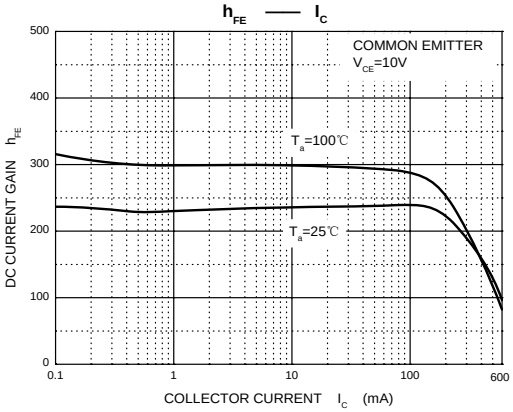
Parameter	Symbol	Test conditions	Min	Max	Unit
Delay time	t_d	V_{CC}=30V, I_C=150mA, $V_{BE(off)}$=0.5V,I_{B1}=15mA		10	nS
Rise time	t_r			25	nS
Storage time	t_S	V_{CC}=30V, I_C=150mA, I_{B1}= -I_{B2}= 15mA		225	nS
Fall time	t_f			60	nS

Typical Characteristics

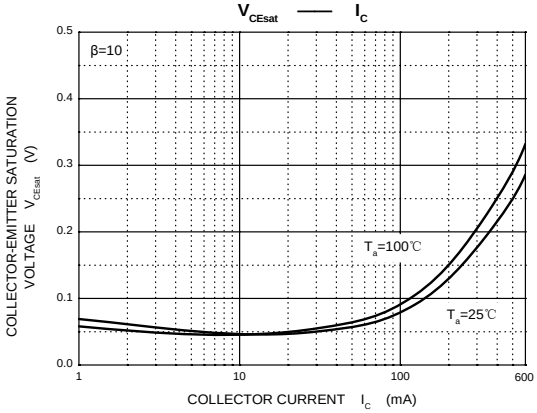
Static Characteristic



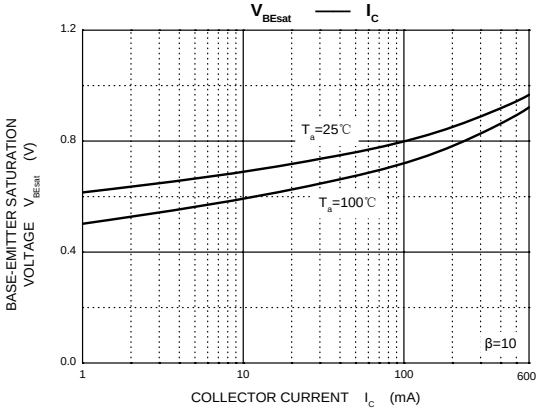
h_{FE} —— I_C



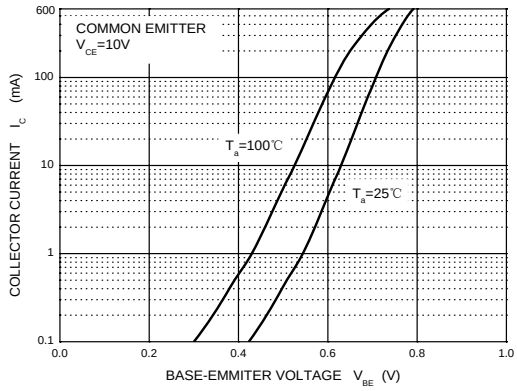
V_{CEsat} —— I_C



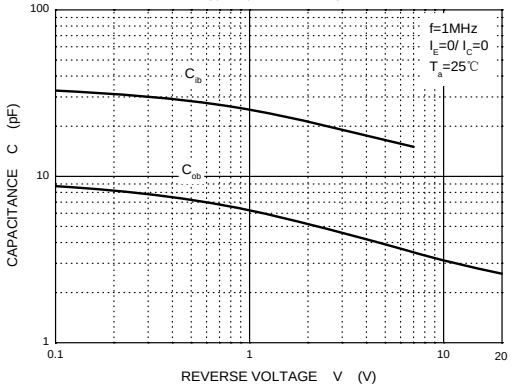
V_{BEsat} —— I_C



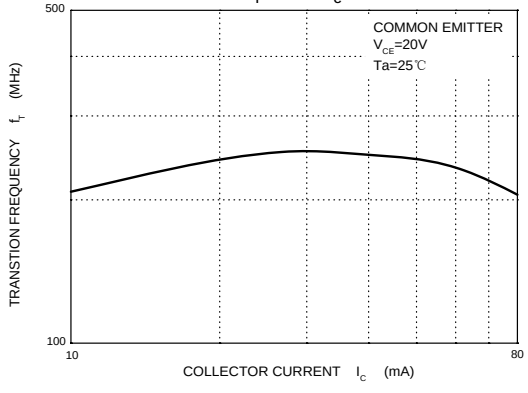
I_C —— V_{BE}



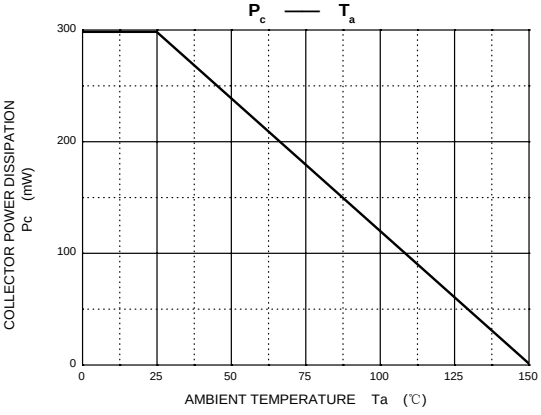
C_{ob} / C_{ib} —— V_{CB} / V_{EB}



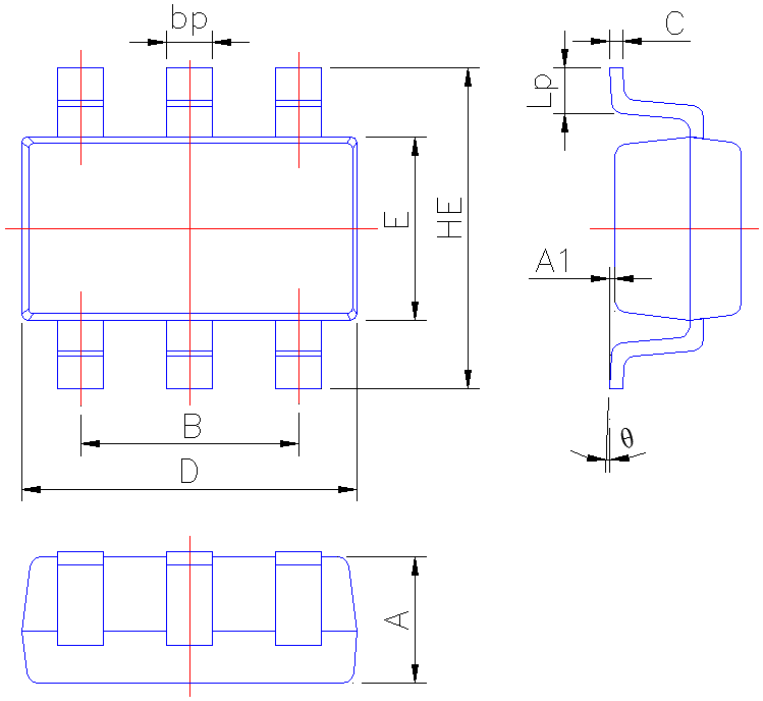
f_T —— I_C



P_c —— T_a



SOT-23-6L Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	1.05	1.20
A1	0.010	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.15
D	2.80	3.00
E	1.50	1.70
HE	2.60	3.00
Lp	0.25	0.55
θ	2°	6°