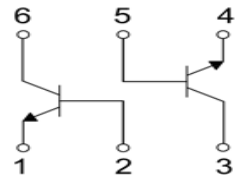
迈拓电子
MAITUO ELECTRONIC

MMDT2222AV Plastic-Encapsulate Transistors

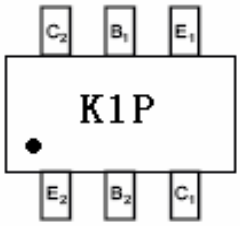


DUAL TRANSISTOR (NPN+NPN)

FEATURE

Complementary PNP Type available MMDT2907AV

MARKING: K1P



SOT-563

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	200	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

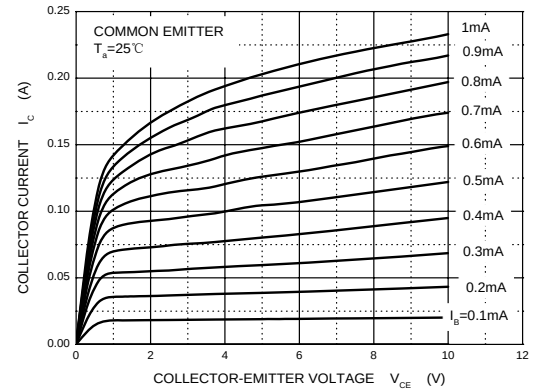
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 10μA, I_E=0	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 10mA, I_B=0	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA.I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}= 60V, 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

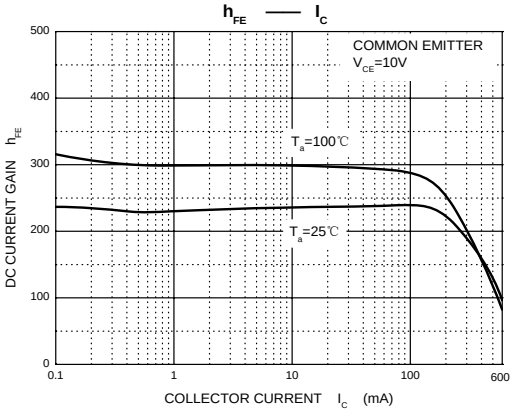
Parameter	Symbol	Test conditions	Min	Max	Unit
Delay time	t_d	V_{CC}=30V, I_C=150mA, $V_{BE(off)}$=0.5V,I_{B1}=15mA		10	nS
Rise time	t_r			25	nS
Storage time	t_S	V_{CC}=30V, I_C=150mA, I_{B1}= -I_{B2}= 15mA		225	nS
Fall time	t_f			60	nS

Typical Characteristics

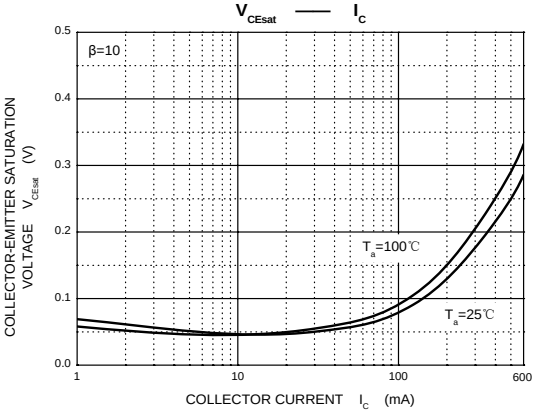
Static Characteristic



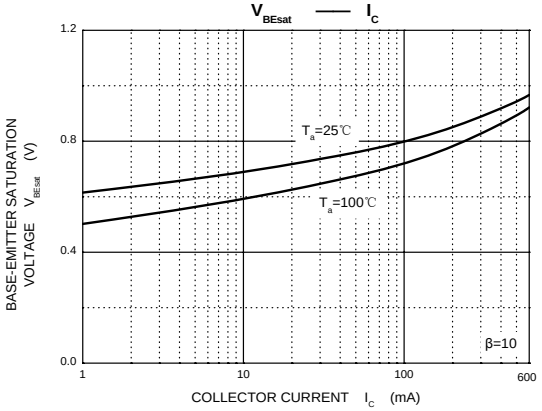
hFE —— IC



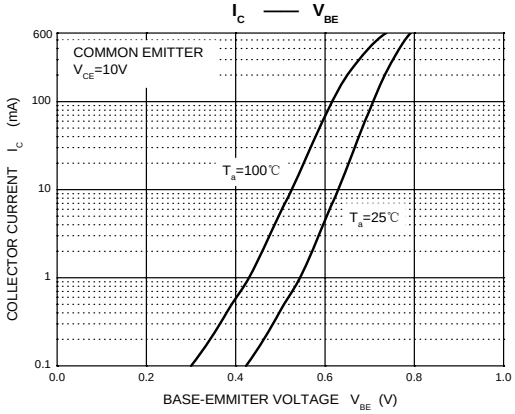
VCEsat —— IC



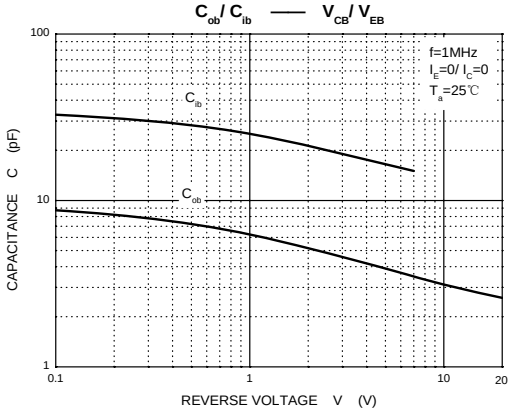
VBEsat —— IC



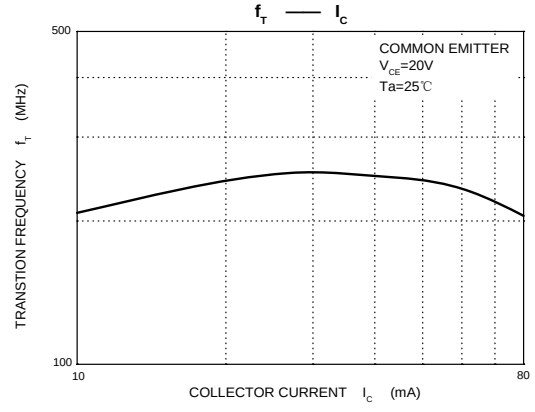
IC —— VBE



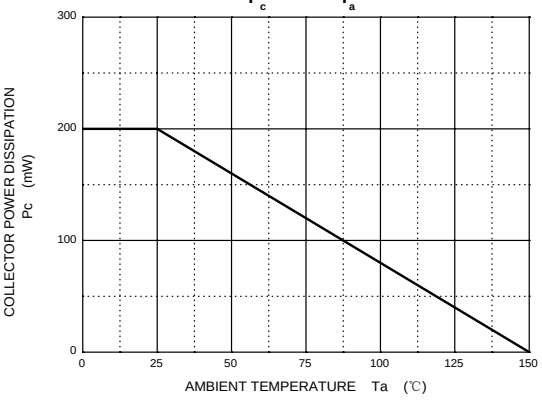
Cob / Cib —— VCB / VEB



fT —— IC



Pc —— Ta



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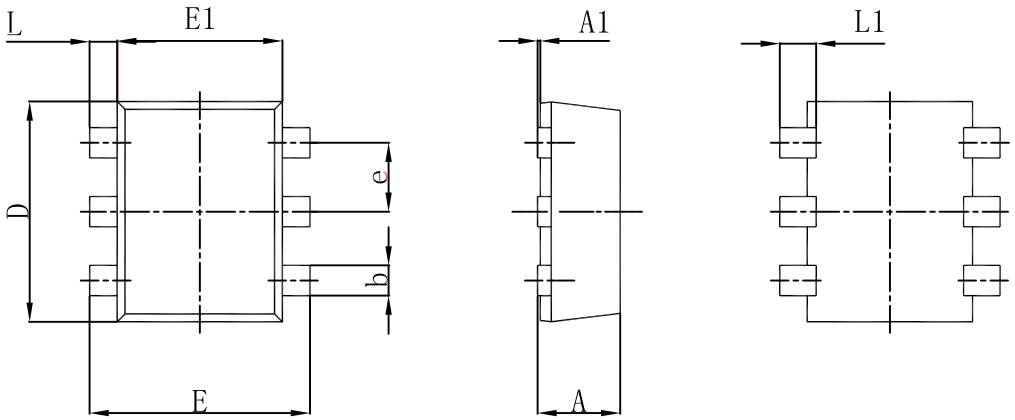
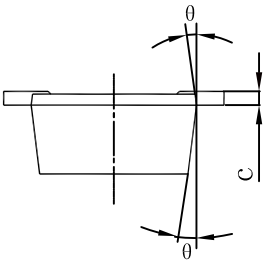
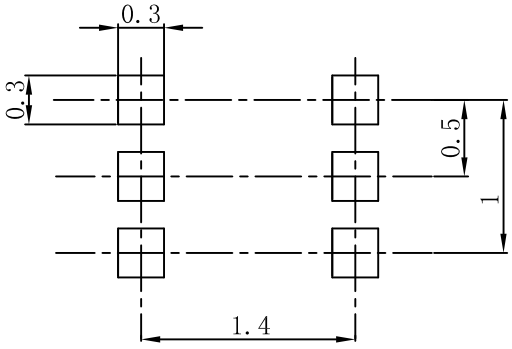
SOT-563 Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	7 °REF.		7 °REF.	

SOT-563 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

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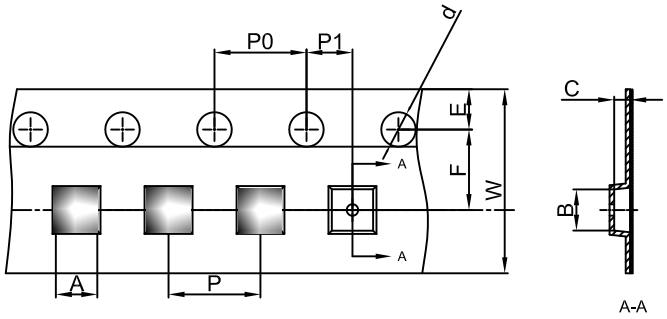
SOT-563 Embossed Carrier Tape



Packaging Description:

SOT-563 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-563	1.78	1.78	0.69	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-563 Tape Leader and Trailer