



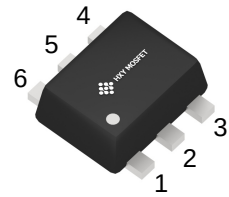
Features

Epitaxial planar die construction.

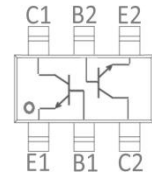
Ideal for low power amplification and switching.

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MMDT3904V	SOT-563	KAP	3000



SOT-563



Pin 1

Maximum Ratings (Ta=25°C unless otherwise noted)

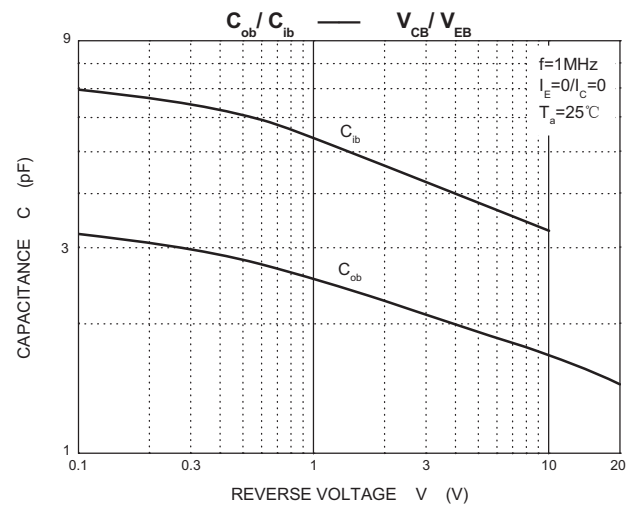
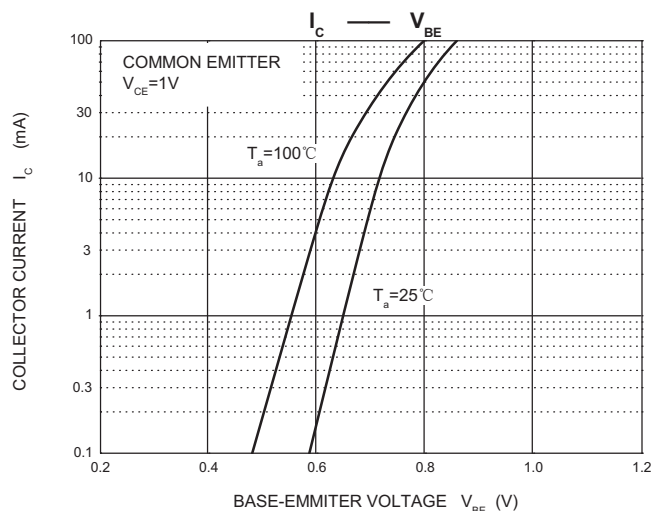
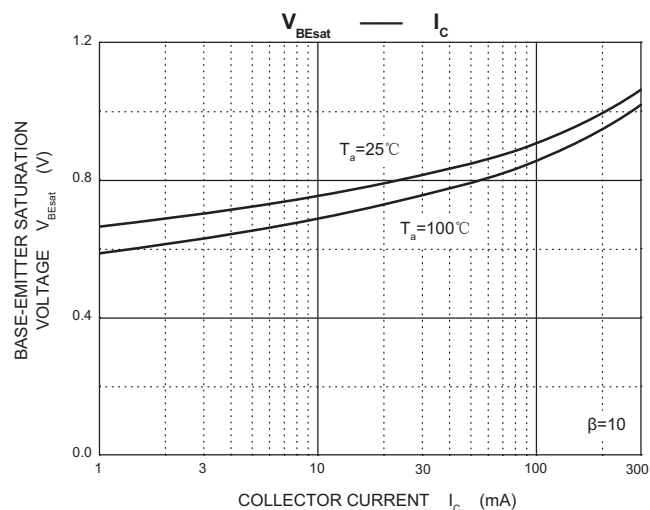
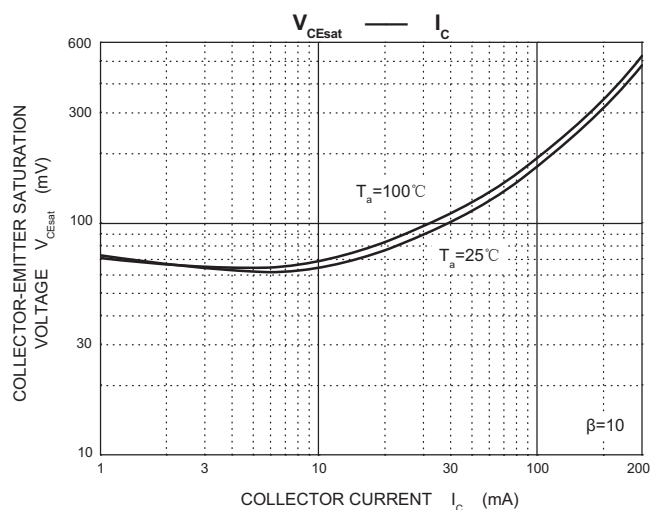
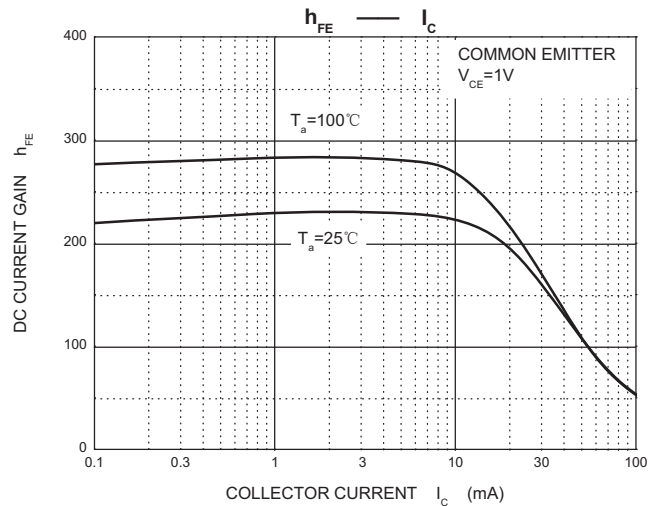
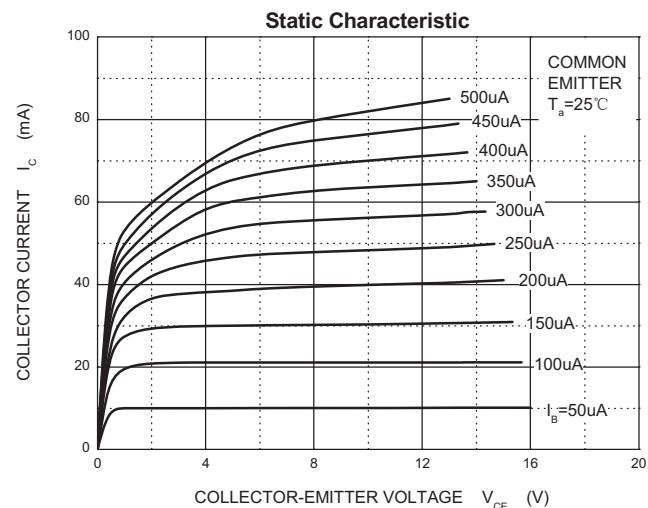
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Collector Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	°C/W
T_J, T_{stg}	Operation Junction And Storage Temperature Range	-55 ~ +150	°C

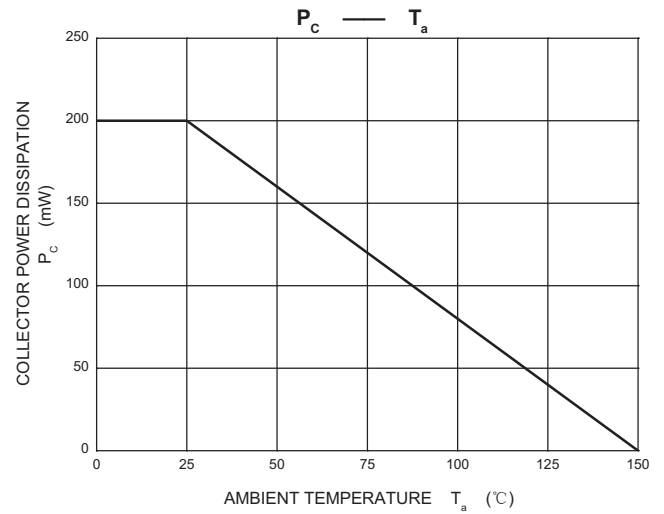
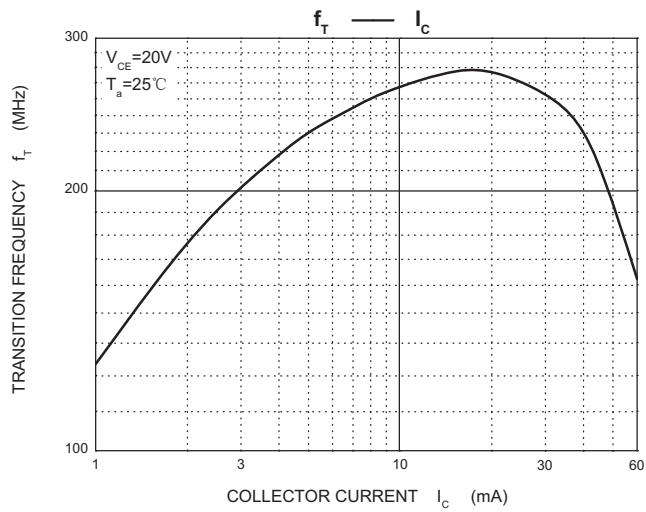
Electrical Characteristics (Ta=25°C unless otherwise noted)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=10\mu A, I_E=0$	60			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=1mA, I_B=0$	40			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	6			V
I_{CEX}	Collector cut-off current	$V_{CE}=30V, V_{EB(off)}=3V$			50	nA
I_{CBO}	Collector cut-off current	$V_{CB}=30V, I_E=0$			50	nA
I_{EBO}	Emitter cut-off current	$V_{EB}=5V, I_C=0$			50	nA
$h_{FE(1)}$	DC current gain(1)	$V_{CE}=1V, I_C=100\mu A$	40			
$h_{FE(2)}$	DC current gain(2)	$V_{CE}=1V, I_C=1mA$	70			
$h_{FE(3)}$	DC current gain(3)	$V_{CE}=1V, I_C=10mA$	100		300	
$h_{FE(4)}$	DC current gain(4)	$V_{CE}=1V, I_C=50mA$	60			
$h_{FE(5)}$	DC current gain(5)	$V_{CE}=1V, I_C=100mA$	30			
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=10mA, I_B=1mA$			0.2	V
		$I_C=50mA, I_B=5mA$			0.3	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C=10mA, I_B=1mA$	0.65		0.85	V
		$I_C=50mA, I_B=5mA$			0.95	V
f_T	Transition frequency	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
C_{ob}	Collector output capacitance	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
NF	Noise figure	$V_{CE}=5V, I_C=0.1mA, f=1kHz, R_g=1K\Omega$			5	dB
t_d	Delay time	$V_{CC}=3V, V_{BE(off)}=0.5V,$ $I_C=10mA, I_{B1}=I_{B2}=1mA$			35	ns
t_r	Rise time				35	ns
t_s	Storage time	$V_{CC}=3V, I_C=10mA,$ $I_{B1}=I_{B2}=1mA$			200	ns
t_f	Fall time				50	ns

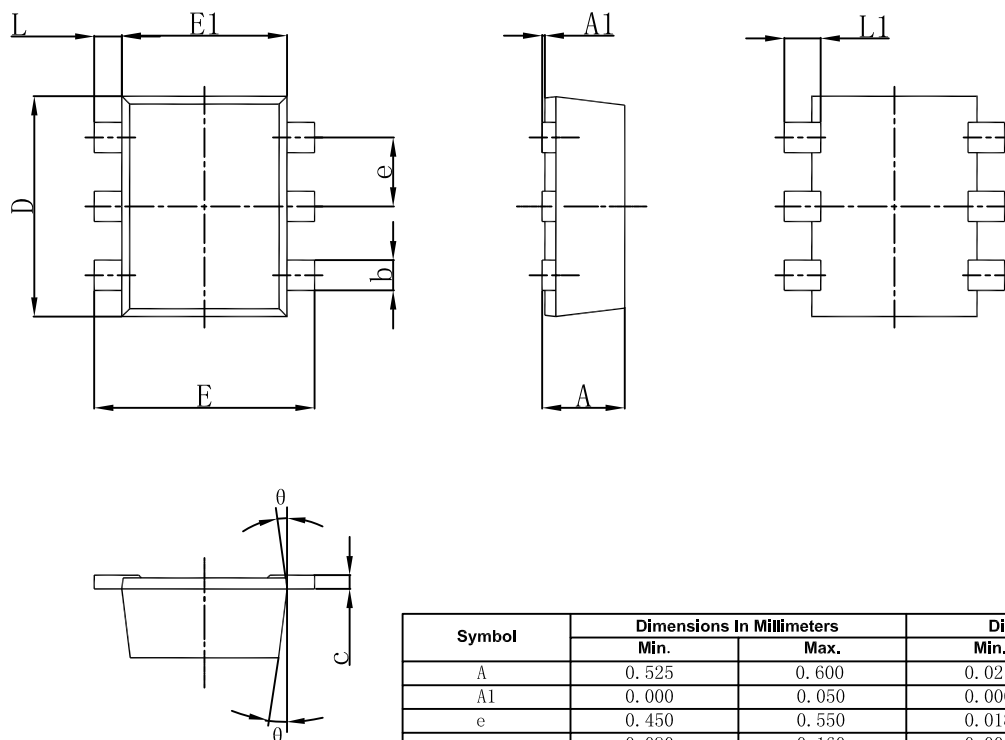


Typical Characteristics





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	10° REF.		10° REF.	



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