PNP Dual Small Signal Surface Mount Transistor

MMDT3906V

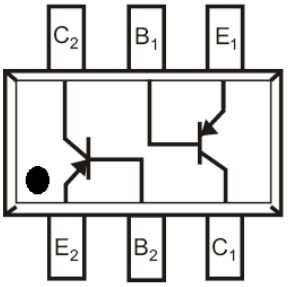
Features

HF

- Epitaxial planar die construction
- Ideal for low power amplification and switching
- Ultra-small surface mount package

Mechanic al Data

- Case: SOT-563
- Molding compound: UL flammability classification rating 94V-0
- Terminal s: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-563

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
MMDT3906V	SOT-563	3000pcs / Tape & Reel	KAR

Maximum Ratings (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	-40	V
Collector-Emitter Breakdown Voltage	V_{CEO}	-40	V
Emitter-Base Breakdown Voltage	V_{EBO}	-5	V
Collector Current (Continuous)	I_C	-0.2	A

Thermal Characteristics

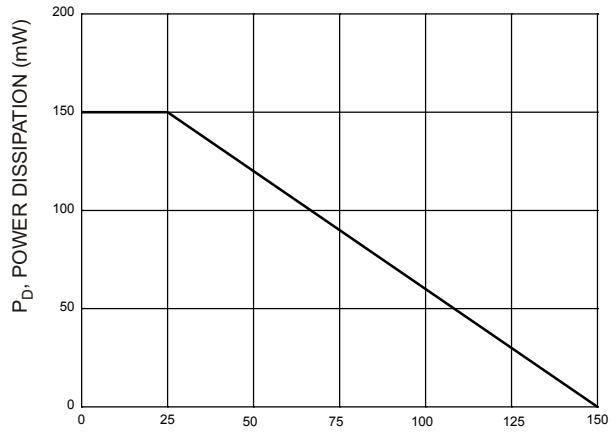
Parameter	Symbol	Value	Unit
Power Dissipation (Collector) *1	P_C	150	mW
Thermal Resistance (Junction-to-Ambient) *1	$R_{\theta JA}$	833	°C/W
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Note 1: Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

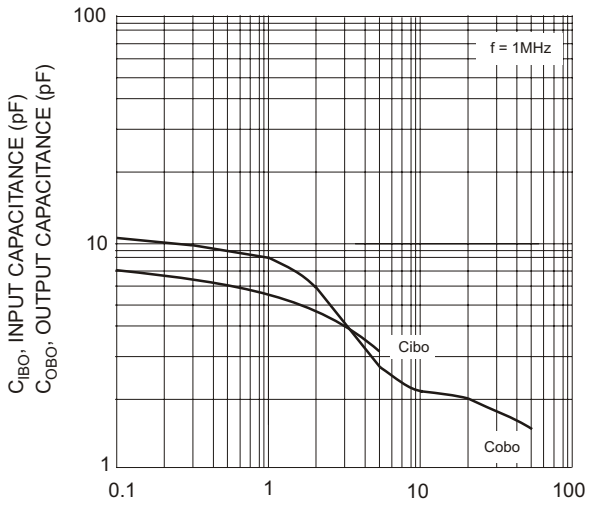
Electrical Characteristics (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = -10μA, I_E = 0	-40	-	-	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 = -10μA, I_C = 0	-5	-	-	V
Collector Cut-off Current	I_{CEX}	V_{CE} = -30V, $V_{EB(OFF)}$ = -3.0V	-	-	-50	nA
Base Cut-off Current	I_{BL}	V_{CE} = -30V, $V_{EB(OFF)}$ = -3.0V	-	-	-50	nA
DC Current Gain	h_{FE}	V_{CE} = -1V, I_C = -0.1mA	60	-	-	-
		V_{CE} = -1V, I_C = -1mA	80	-	-	-
		V_{CE} = -1V, I_C = -10mA	100	-	300	-
		V_{CE} = -1V, I_C = -50mA	60	-	-	-
		V_{CE} = -1V, I_C = -100mA	30	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -10mA, I_B = -1 mA	-	-	-0.25	V
		I_C = -50mA, I_B = -5 mA	-	-	-0.4	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = -10mA, I_B = -1 mA	-0.65	-	-0.85	V
		I_C = -50mA, I_B = -5 mA	-	-	-0.95	V
Output Capacitance	C_{OBO}	V_{CB} = -5V, I_E = 0A, f = 1MHz	-	-	4.5	pF
Input Capacitance	C_{IBO}	I_C = 0, V_{EB} = -0.5V, f =1MHz	-	-	10	pF
Transition Frequency	f_T	I_C = -1mA, V_{CE} = -10V f = 1KHz	250	-	-	MHZ
Noise Figure	NF	I_C = -0.1mA, V_{CE} = -20V f = 100MHz	-	-	4	dB
Delay Time	t_d	V_{CC} = -3V,$V_{BE(off)}$ = 0.5V I_C = -10mA, I_{B1} = -1mA	-	-	35	ns
Rise Time	t_r		-	-	35	ns
Storage Time	t_s	V_{CC} = -3V, I_C = -10mA I_{B1} = I_{B2} = -1mA	-	-	225	ns
Fall Time	t_f		-	-	75	ns

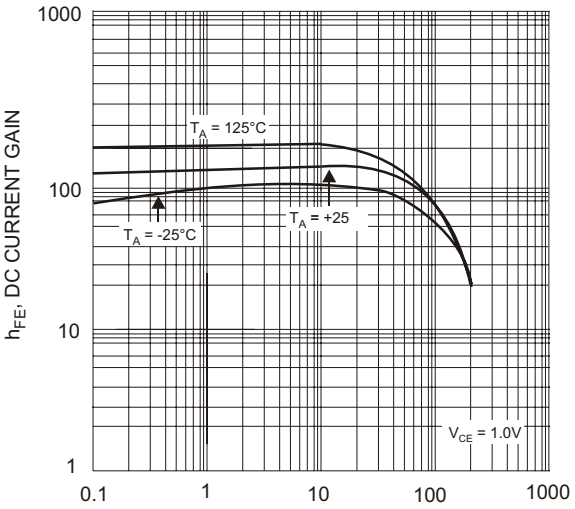
Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)



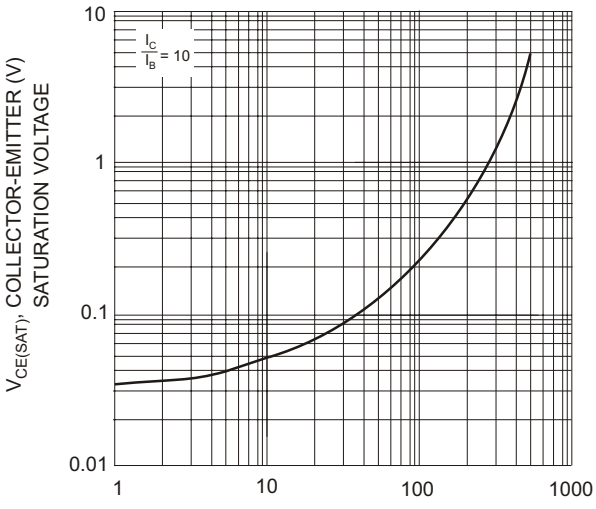
T_A, AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



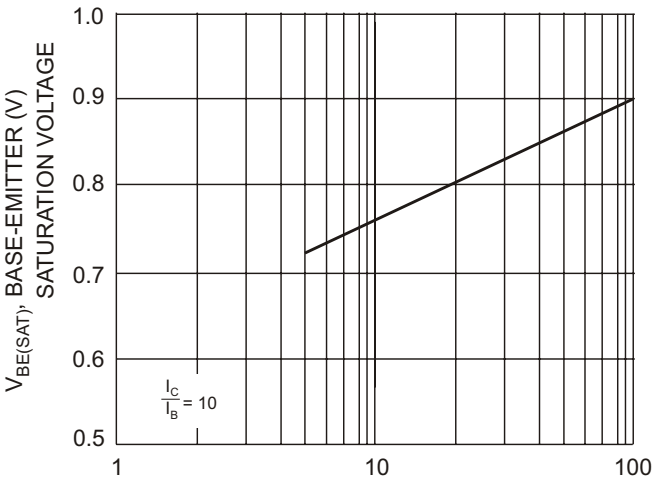
V_{CB}, COLLECTOR-BASE VOLTAGE (V)
Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



I_C, COLLECTOR CURRENT (mA)
Fig. 3, Typical DC Current Gain vs Collector Current

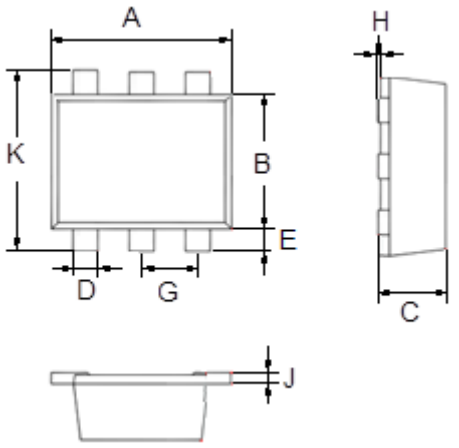


I_C, COLLECTOR CURRENT (mA)
Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current



I_C, COLLECTOR CURRENT (mA)
Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

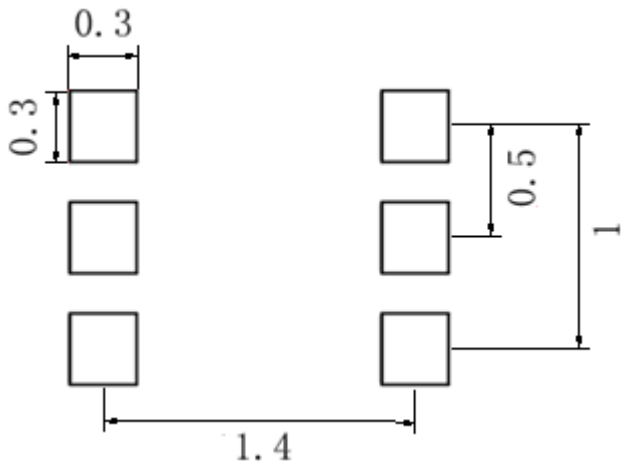
Package Outline Dimensions (Unit: mm)



SOT-563		
Dimension	**Min.**	**Max.**
A	1.500	1.700
B	1.100	1.300
C	0.525	0.600
D	0.170	0.270
E	0.100	0.300
G	0.450	0.550
H	0.000	0.050
J	0.090	0.160
K	1.500	1.700

Package Outline Dimensions (Unit: mm)

SOT-563



Important Notice

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.