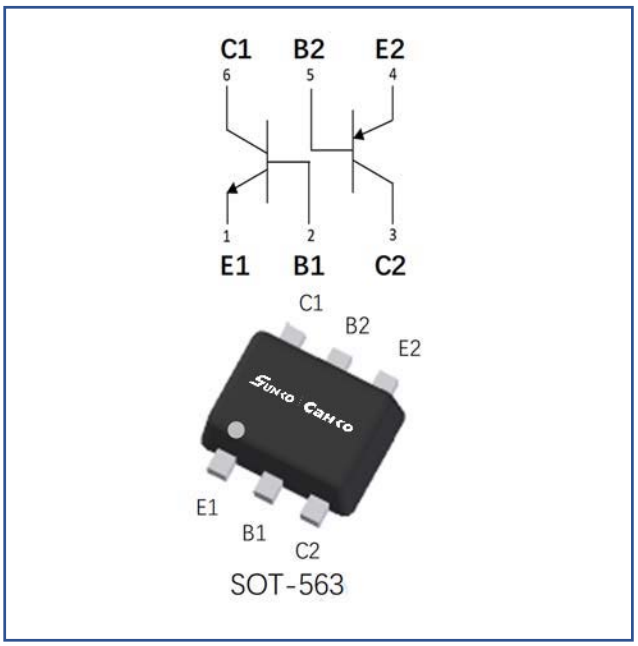
MMDT3906V

Dual PNP Small Signal Transistor



Features

- Moisture sensitivity level 1
- Halogen free and
- Surface mount package ideally suited for auto matic Insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package**: SOT-563
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (T_a=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				KAR
Collector-base voltage	V_{CBO}	V	I_C=-10uA,I_E=0	-40
Collector-emitter voltage	V_{CEO}	V	I_C=-1mA,I_B=0	-40
Emitter-base voltage	V_{EBO}	V	I_E=-10uA,I_C=0	-5
Collector current	I_C	mA		-200
Power dissipation	P_D	mW		150
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

MMDT3906V

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=-10uA,I_E=0	-40		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C=-1mA,I_B=0	-40		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=-10uA,I_C=0	-5		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=-40V,I_E=0			-100
Collector cutoff current	I_{CEX}	nA	V_{CE}=-30V, $V_{EB(OFF)}$=-3V			-50
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=-5V,I_C=0			-100
DC current gain	h_{FE1}		V_{CE}=-1V,I_C=-0.1mA	40		
	h_{FE2}		V_{CE}=-1V,I_C=-1mA	70		
	h_{FE3}		V_{CE}=-1V,I_C=-10mA	100		300
	h_{FE4}		V_{CE}=-1V,I_C=-50mA	60		
	h_{FE5}		V_{CE}=-1V,I_C=-100mA	30		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	V	I_C=-10mA,I_B=-1mA			-0.25
	$V_{CE(sat)2}$	V	I_C=-50mA,I_B=-5mA			-0.4
Base-emitter saturation voltage	$V_{BE(sat)1}$	V	I_C=-10mA,I_B=-1mA	-0.65		-0.85
	$V_{BE(sat)2}$	V	I_C=-50mA,I_B=-5mA			-0.95
Collector-base Output Capacitance	Cob	pF	V_{CB}=-5.0Vdc, f=1.0MHz, I_E=0			4.5
Transition frequency	f_T	MHz	V_{CE}=-20V,I_C=-10mA, f=100MHz	250		
Noise figure	N_F	dB	V_{CE}=-5V,Ic=-0.1mA, f=1kHz,Rs=1KΩ			4
Delay time	td	ns	V_{CC}=-3V, I_C=-10mA, V_{BE}=-0.5V, I_{B1}=-1mA			35
Rise time	tr	ns				35
Storage time	ts	ns	V_{CC}=-3V, I_C=-10mA, I_{B1}=-I_{B2}=-1mA			225
Fall time	tf	ns				75

MMDT3906V

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}$(1)	℃/W	833
Thermal resistance, junction-to-case	$R_{\theta J-C}$(1)	℃/W	667

Note:

（1）Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 25.4mm*25.4mm copper pad areas

■Characteristics

Fig 1：Static Characteristics

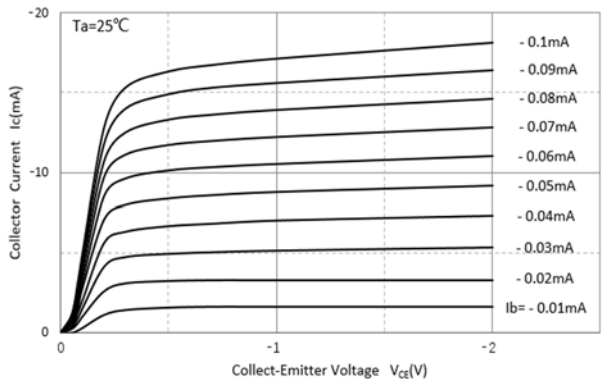


Fig 2：DC Current Gain

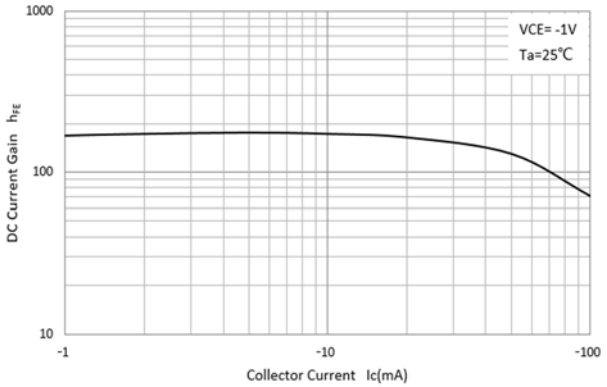


Fig 3：Collector-Emitter Saturation Voltage

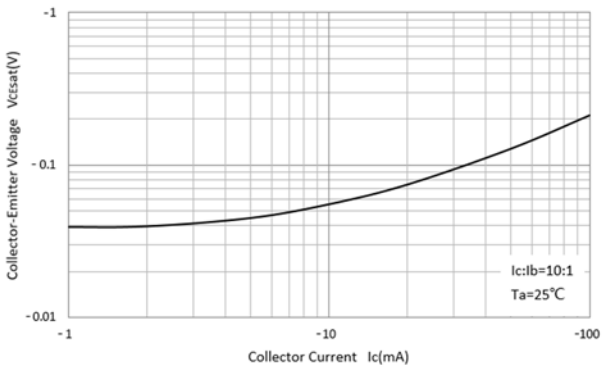


Fig 4：Base-Emitter Saturation Voltage

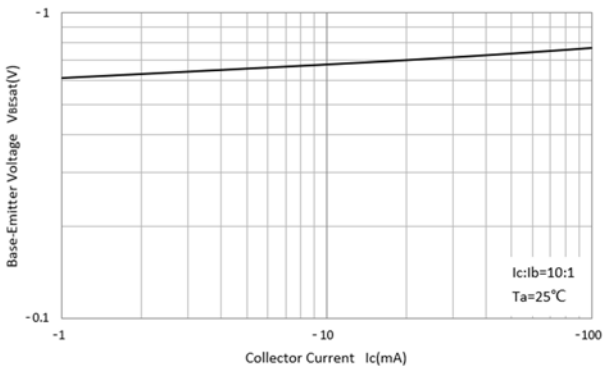


Fig 5：Base-Emitter Voltage

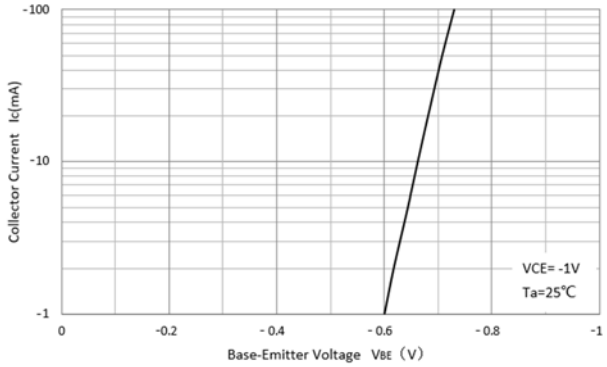


Fig 6：Cob/Cib-V_{CB}/V_{EB}

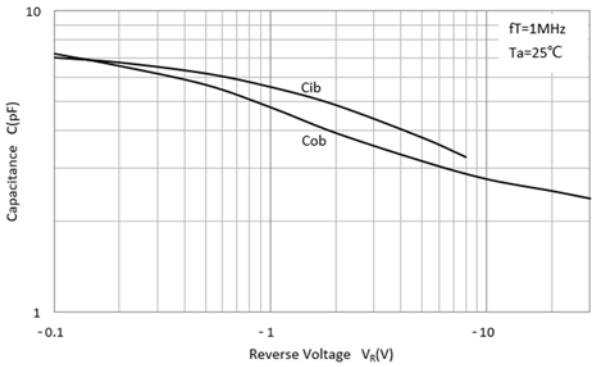
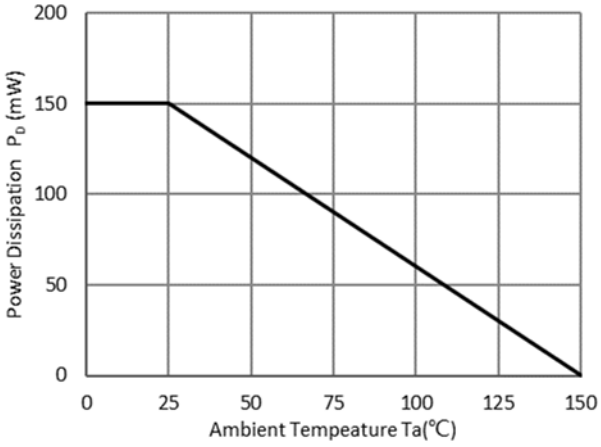


Fig 7：P_D-Ta Curve



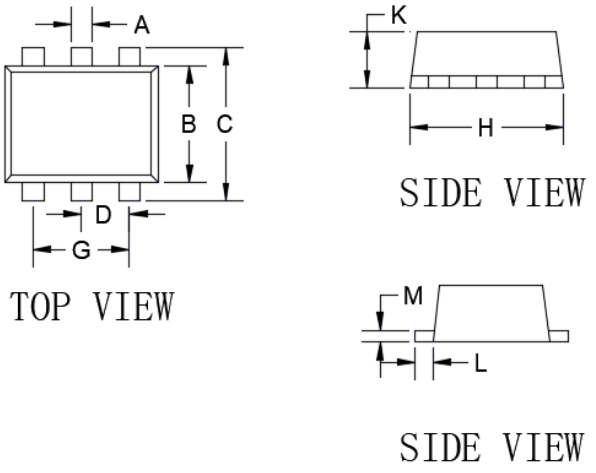
MMDT3906V

■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMDT3906V	F2	Approximate 0.0035	3000	30000	120000	7” reel

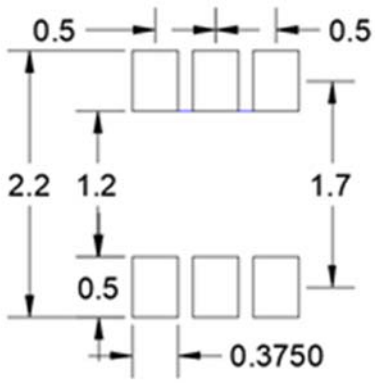
■ Outline Dimensions

SOT-563



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	0.006	0.011	0.150	0.300
B	0.043	0.051	1.100	1.300
C	0.059	0.067	1.500	1.700
D	0.016	0.024	0.400	0.600
G	0.035	0.043	0.900	1.100
H	0.059	0.067	1.500	1.700
K	0.021	0.026	0.550	0.650
L	0.004	0.011	0.100	0.300
M	0.004	0.007	0.100	0.180

■ Suggested Pad Layout



UNIT:mm

Disclaimer

The information presented in this document is for reference only. Shanghai Sunco Electronics Co., Ltd reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Russiansunco or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.russiansunco.com , or consult your nearest Russiansunco's sales office for further assistance.