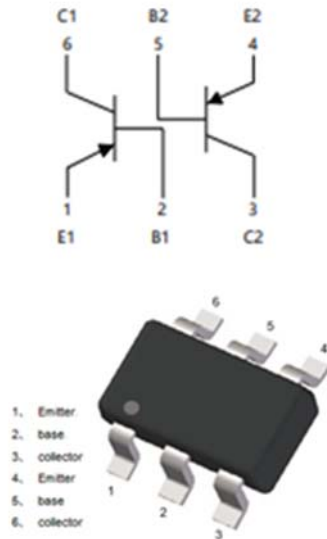


Dual PNP Small Signal Transistor



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-363S
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102CC

■ Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				K3N
Collector-base voltage	V_{CB0}	V	$I_C = -10\mu\text{A}, I_E = 0$	-40
Collector-emitter voltage	V_{CE0}	V	$I_C = -1\text{mA}, I_B = 0$	-40
Emitter-base voltage	V_{EB0}	V	$I_E = -10\mu\text{A}, I_C = 0$	-5
Collector current	I_C	mA		-200
Power dissipation	P_D	mW		200
Operation junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



MMDT3906S

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■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =-10μA, 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 =-10μA, I _C =0	-5		
Collector-base cut-off current	I _{CBO}	nA	V _{CB} =-30V, I _E =0			-50
Collector-emitter cut-off 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			-50
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} =-5.0V, 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, I _C =-0.1mA, f=1kHz, R _S =1KΩ			4
Delay time	t _d	ns	V _{CC} =-3V, I _C =-10mA,			35
Rise time	t _r	ns	V _{BE} =-0.5V, I _{B1} =-1mA			35
Storage time	t _s	ns	V _{CC} =-3V, I _C =-10mA,			225
Fall time	t _f	ns	I _{B1} =-I _{B2} =-1mA			75



■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	°C/W	625
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	°C/W	500

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Static Characteristics

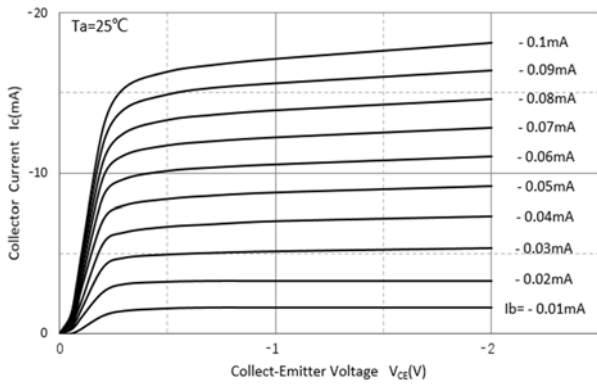


Fig 2: Dc Current Gain

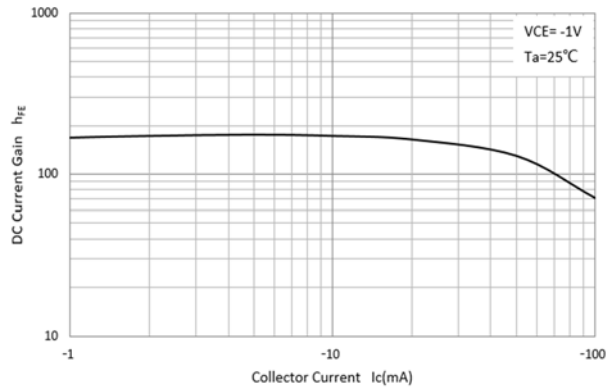


Fig 3: Collector-Emittor Saturation Voltage

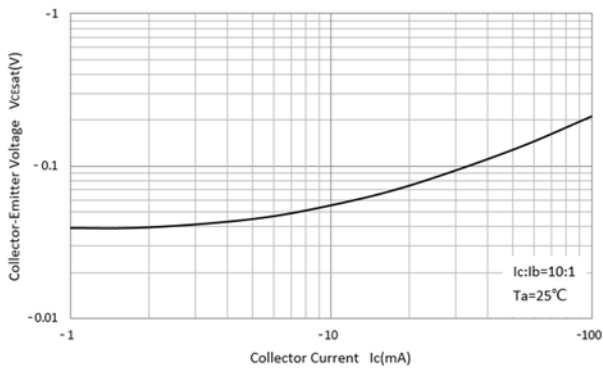


Fig 4: Base-Emittor Saturation Voltage

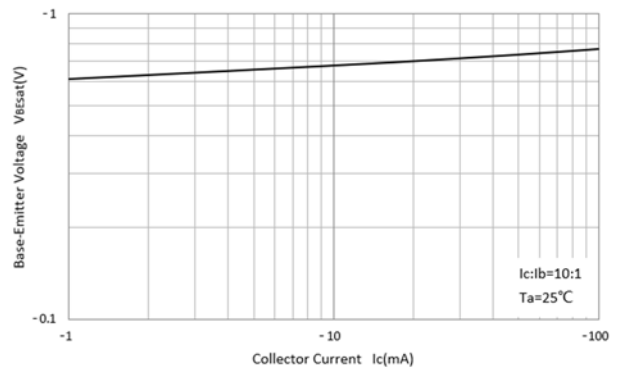


Fig 5: Base-Emittor Voltage

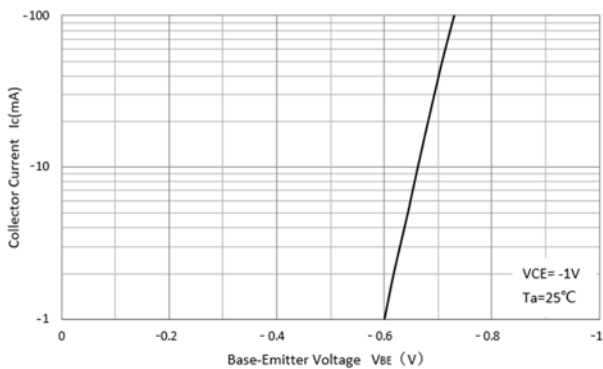


Fig 6: Cob/Cib-Vcb/Veb

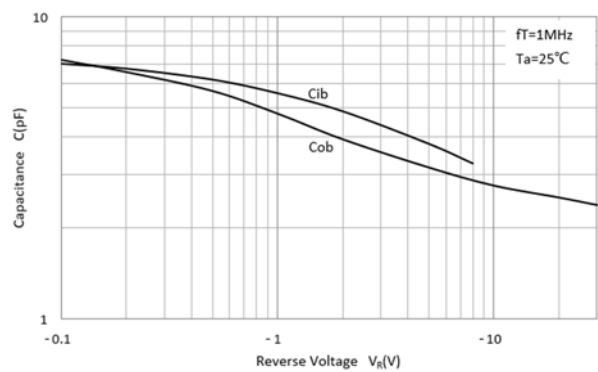
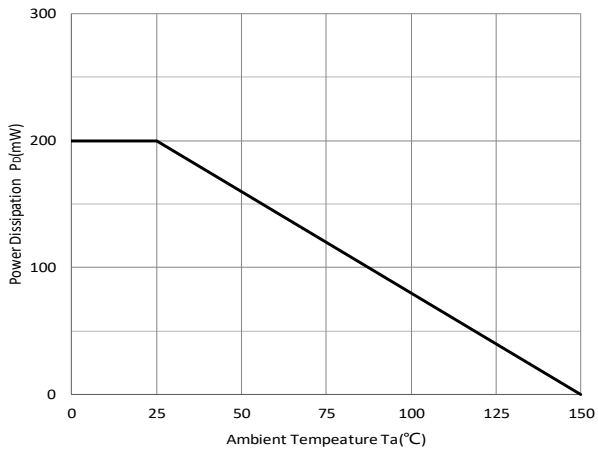




Fig 7: P_D-T_a Curve





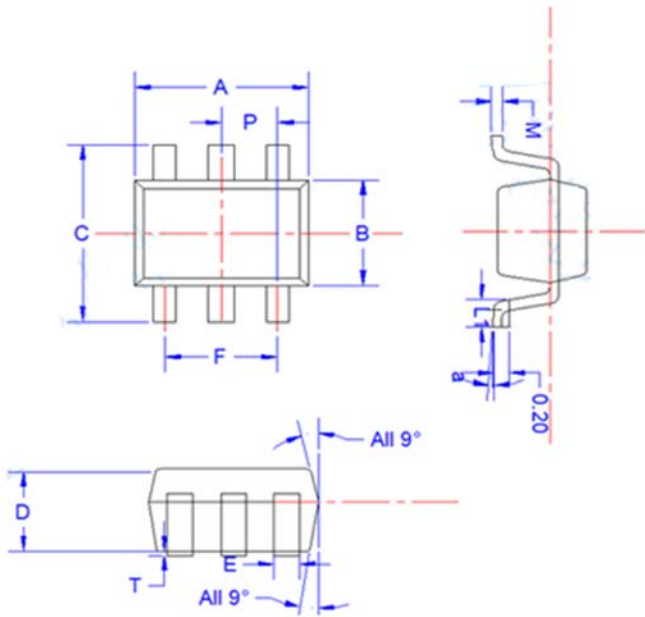
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Ordering Information

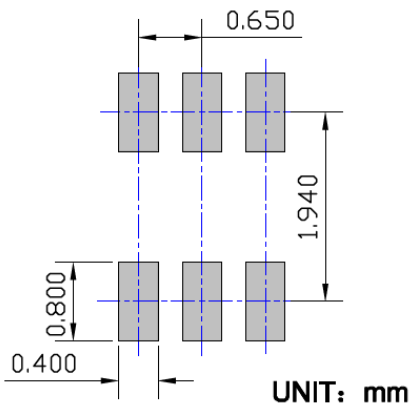
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMDT3906S	F2	Approximate 0.009	3000	30000	120000	7" reel
MMDT3906S	F3	Approximate 0.009	10000	/	210000	7" reel

Outline Dimensions



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
E	0.15	0.25	0.35
B	1.15	1.25	1.35
C	2.00	2.10	2.20
P	0.650BSC		
A	1.80	2.00	2.20
T	0.00	0.05	0.100
D	0.90	0.95	1.00
L1	0.20	0.30	0.40
a	4°±4°		
M	0.10	0.15	0.25

Suggested Pad Layout





Disclaimer

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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 which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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