

SOT-363 Plastic-Encapsulate Transistors

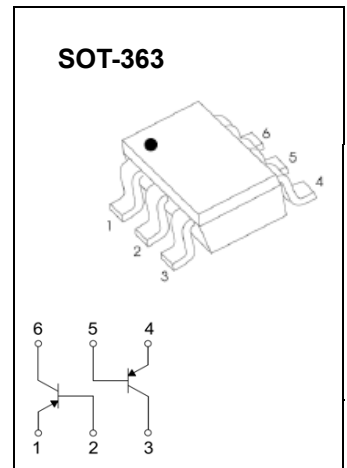
MMDT3906DW DUAL TRANSISTOR (PNP+PNP)

FEATURES

- Epitaxial planar die construction
- Ideal for low power amplification and switching

MARKING:K3N

MAXIMUM RATINGS($T_a=25^\circ\text{C}$ unless otherwise noted)



Symbol	Parameter	Value	Units
V_{CB0}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.2	A
P_C	Collector Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance. Junction to Ambient Air	625	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=-10\mu\text{A}, I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	I_{CEX}	$V_{CE}=-30\text{V}, V_{EB(OFF)}=-3\text{V}$			-50	nA
Base cut-off current	I_{EBO}	$V_{EB}=-5\text{V}, I_C=0$			-50	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	60			
	$h_{FE(2)}$	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	80			
	$h_{FE(3)}$	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100		300	
	$h_{FE(4)}$	$V_{CE}=-1\text{V}, I_C=-50\text{mA}$	60			
	$h_{FE(5)}$	$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$			-0.25	V
	$V_{CE(sat)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-0.65		-0.85	V
	$V_{BE(sat)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$			-0.95	V
Transition frequency	f_T	$V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	250			MHz
Collector output capacitance	C_{ob}	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Noise figure	NF	$V_{CE}=-5\text{V}, I_C=-0.1\text{mA}, f=1\text{KHz}, R_g=1\text{K}\Omega$			4	dB
Delay time	t_d	$V_{CC}=-3\text{V}, V_{BE}=0.5\text{V}$			35	nS
Rise time	t_r	$I_C=-10\text{mA}, I_{B1}=-I_{B2}=-1\text{mA}$			35	nS
Storage time	t_s	$V_{CC}=-3\text{V}, I_C=-10\text{mA}$			225	nS
Fall time	t_f	$I_{B1}=-I_{B2}=-1\text{mA}$			75	nS

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

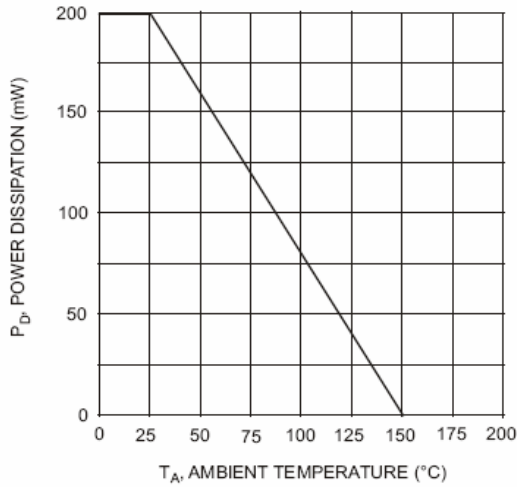


Fig. 1, Max Power Dissipation vs Ambient Temperature

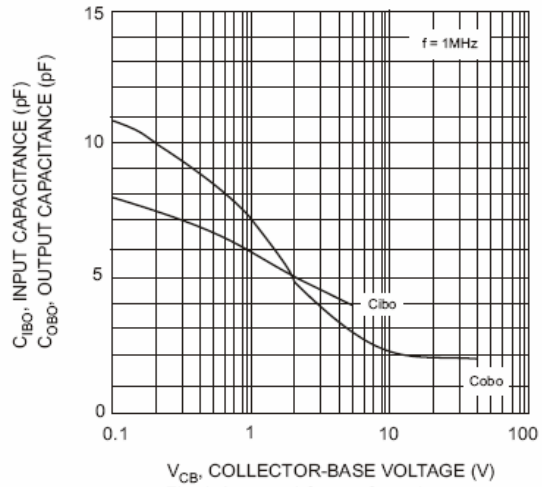


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

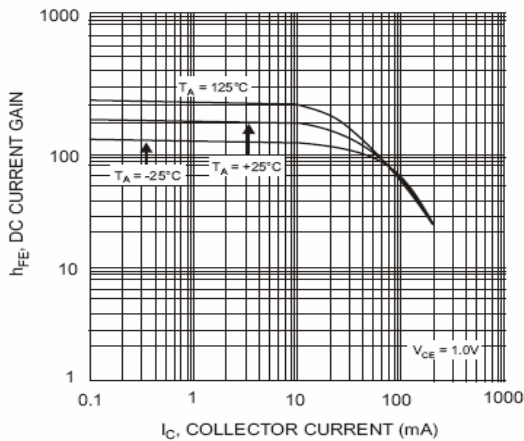


Fig. 3, Typical DC Current Gain vs Collector Current

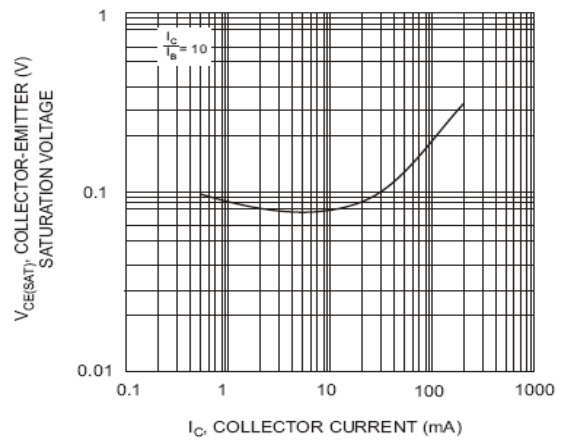


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

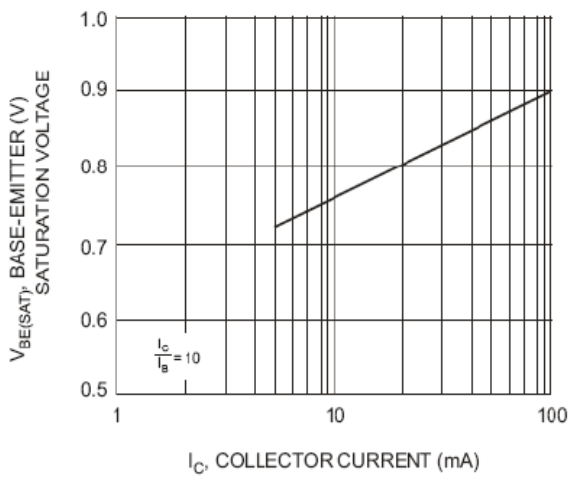
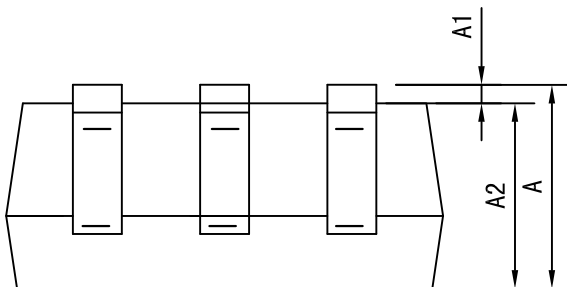
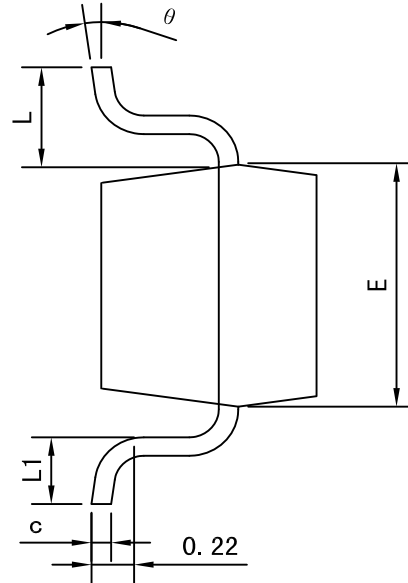
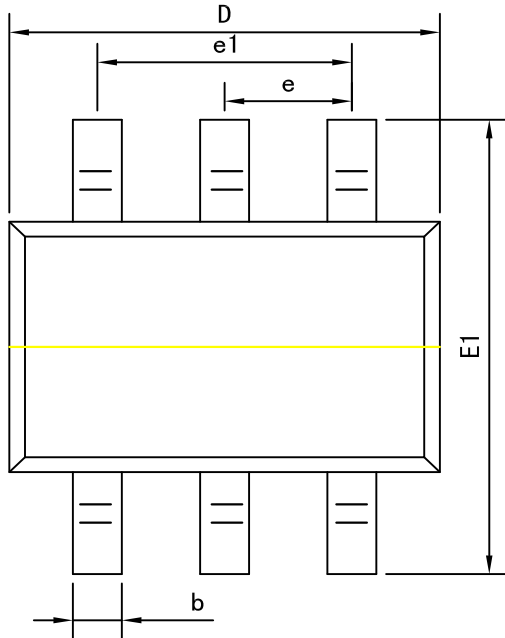


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current



Package outline dimensions

SOT-363



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°