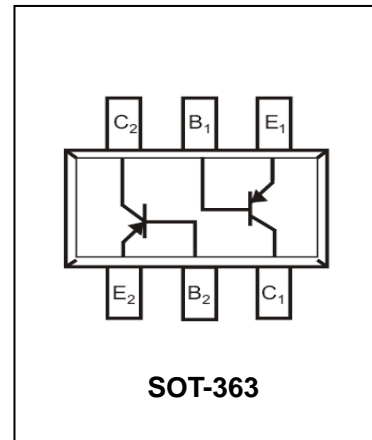


## Dual PNP Small Signal Surface Mount Transistor **MMDT3906**

### FEATURES

- Epitaxial planar die construction.
- Ideal for low power amplification and switching.
- Ultra-small surface mount package.
- Also available in lead free version.



### APPLICATIONS

- General switching and amplification.

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMDT3906	K3N	SOT-363

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CBO</sub>	collector-base voltage	-40	V
V <sub>CEO</sub>	collector-emitter voltage	-40	V
V <sub>EBO</sub>	emitter-base voltage	-5	V
I <sub>C</sub>	collector current -continuous	-0.2	A
P <sub>tot</sub>	total power dissipation	-0.2	W
R <sub>θJA</sub>	Thermal resistance, junction to ambient	625	°C/W
T <sub>stg</sub>	storage temperature	150	°C
T <sub>j</sub>	junction temperature	-55 to +150	°C

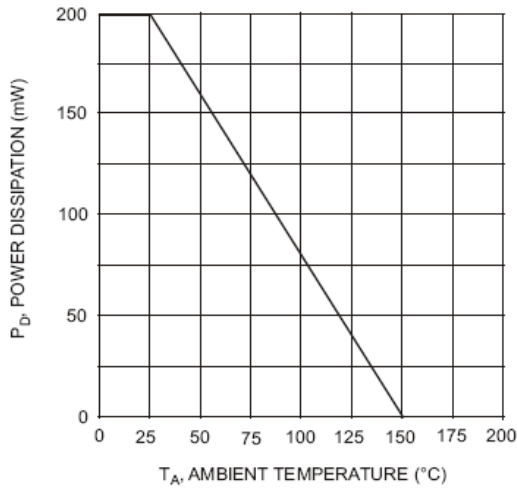
## Dual PNP Small Signal Surface Mount Transistor **MMDT3906**

### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

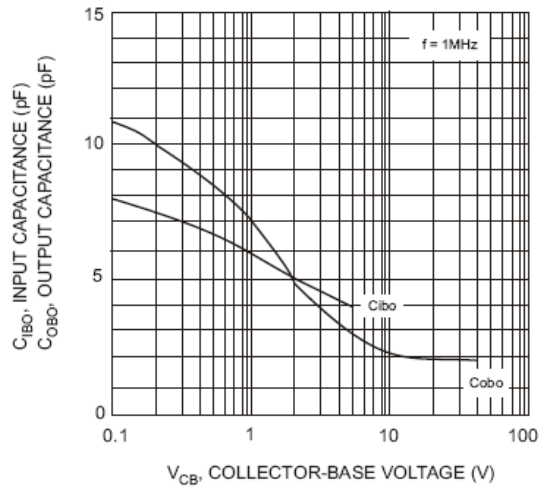
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -10\mu A, I_E = 0$	-40		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -1mA, I_B = 0$	-40		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = -10\mu A, I_C = 0$	-5		V
$I_{CEX}$	collector cut-off current	$V_{CE} = -30V, V_{EB(OFF)} = -3.0V$	-	-0.05	$\mu A$
$I_{BL}$	Base cut-off current	$V_{CE} = -30V, V_{EB(OFF)} = -3.0V$	-	-0.05	$\mu A$
$h_{FE}$	DC current gain	$V_{CE} = -1V, I_C = -0.1mA$	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	-	
$V_{CE(sat)}$	collector-emitter saturation voltage	$I_C = -10mA, I_B = -1mA$	-	-250	mV
		$I_C = -50mA, I_B = -5mA$	-	-400	mV
$V_{BE(sat)}$	base-emitter saturation voltage	$I_C = -10mA, I_B = -1mA$	-650	-850	mV
		$I_C = -50mA, I_B = -5mA$	-	-950	mV
$C_{obo}$	Output capacitance	$I_E = 0, V_{CB} = -5V; f = 1MHz$	-	4.5	pF
$C_{ibo}$	Input capacitance	$I_C = 0, V_{EB} = -0.5V; f = 1MHz$	-	10	pF
$f_T$	transition frequency	$I_C = -1.0mA, V_{CE} = -10V, f = 1.0KHz$	250	-	MHz
NF	noise figure	$I_C = -0.1mA, V_{CE} = -20V, f = 100MHz$	-	4	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	$V_{CC} = -3V, I_C = -10mA$ $I_{B1} = -I_{B2} = -1mA$	-	225	ns
$t_f$	fall time		-	75	ns

**Dual PNP Small Signal Surface Mount Transistor MMDT3906**

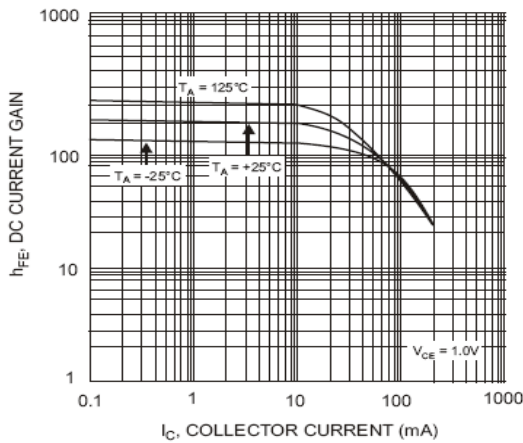
TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified



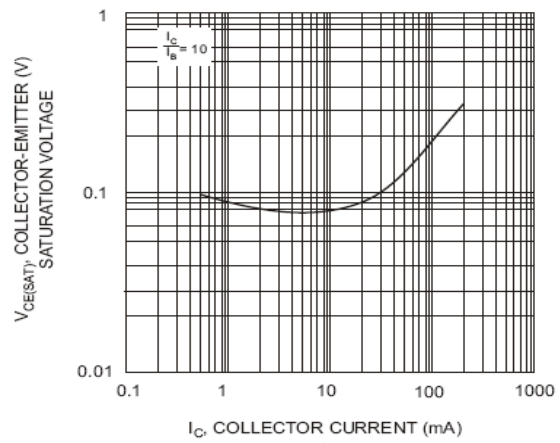
$T_A$ , AMBIENT TEMPERATURE ( $^\circ\text{C}$ )  
 Fig. 1, Max Power Dissipation vs Ambient Temperature



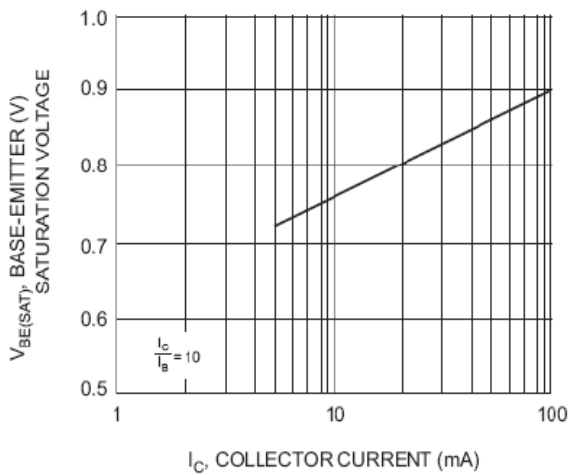
$V_{CB}$ , COLLECTOR-BASE VOLTAGE (V)  
 Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



$I_C$ , 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



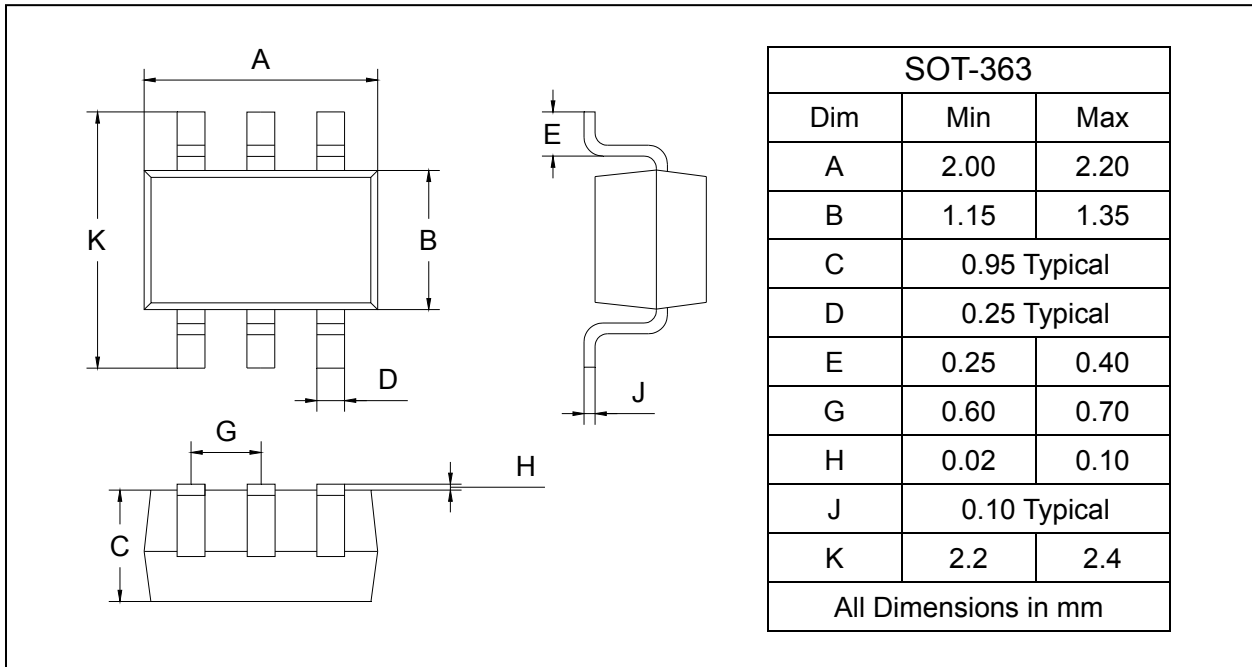
$I_C$ , COLLECTOR CURRENT (mA)  
 Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

## Dual PNP Small Signal Surface Mount Transistor **MMDT3906**

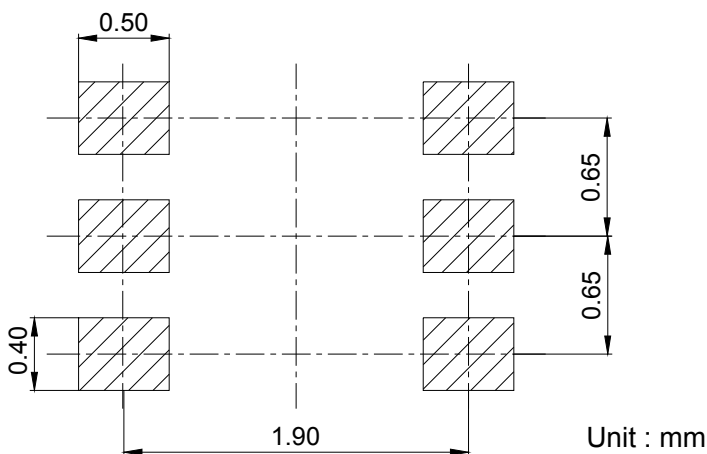
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

Device	Package	Shipping
MMDT3906	SOT-363	3000/Tape&Reel