



**THE DATASHEET OF  
MMDT3906-TP**



## Features

- Epitaxial Planar Die Construction
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-200	mA
Collector Power Dissipation	$P_C$	200	mW

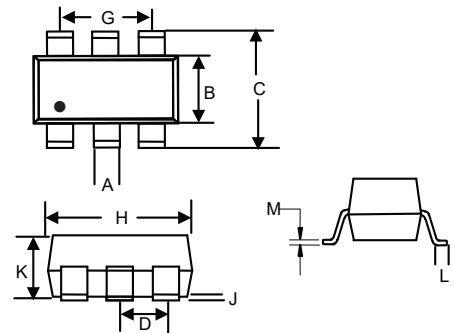
## Thermal characteristics

Parameter	Symbol	Rating	Unit
Operating Junction Temperature Range	$T_{OPR}$	-55~+150	°C
Storage Temperature Range	$T_{STR}$	-55~+150	°C
Thermal Resistance from Junction to Ambient	$R_{th(J-A)}$	625	°C/W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

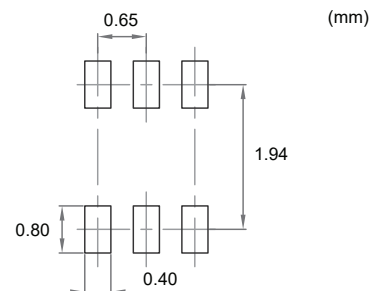
# Dual PNP Small Signal Transistors

## SOT-363

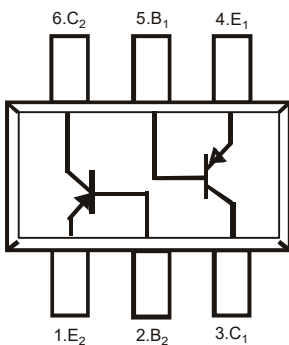


DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	----	0.004	----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

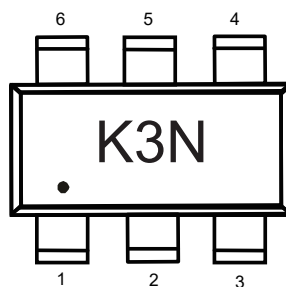
### Suggested Solder Pad Layout



### Internal Structure



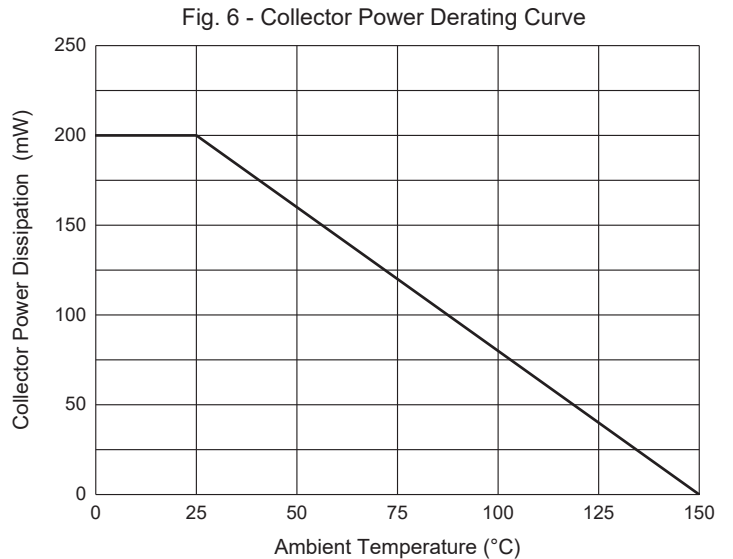
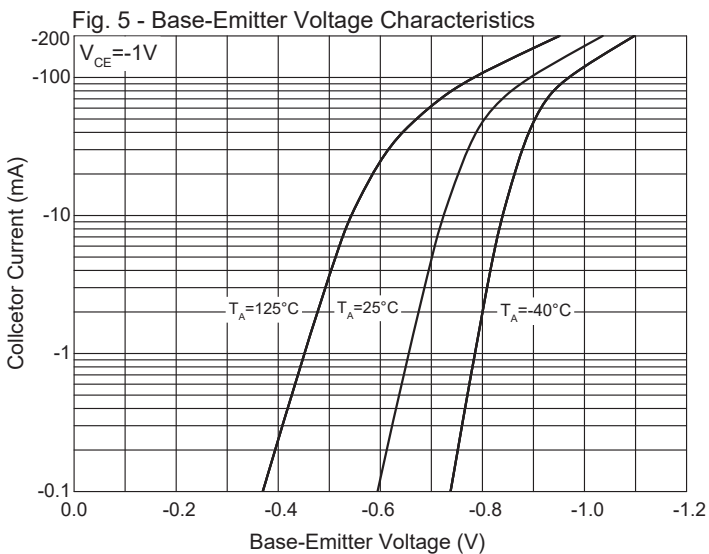
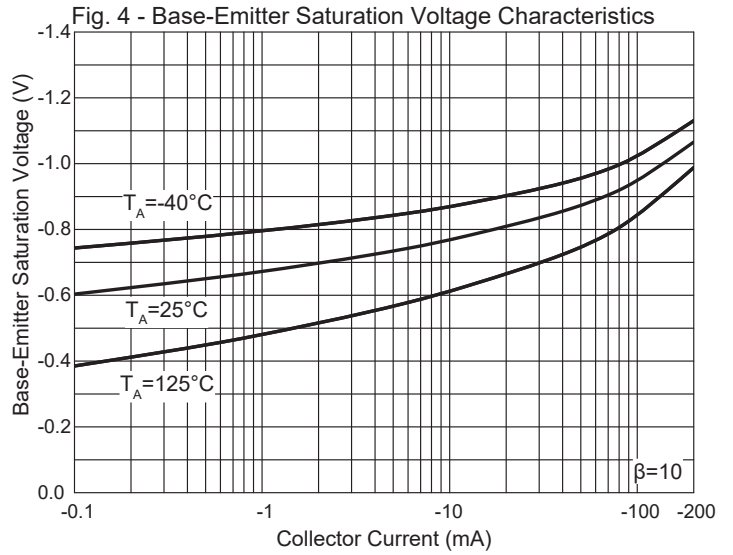
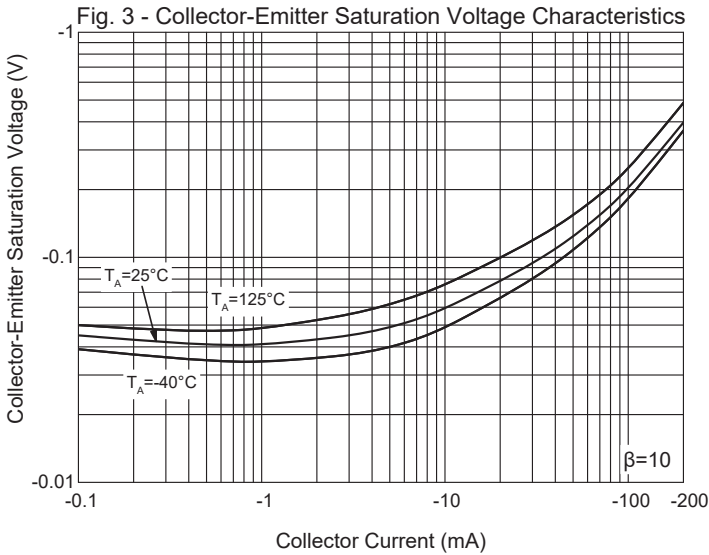
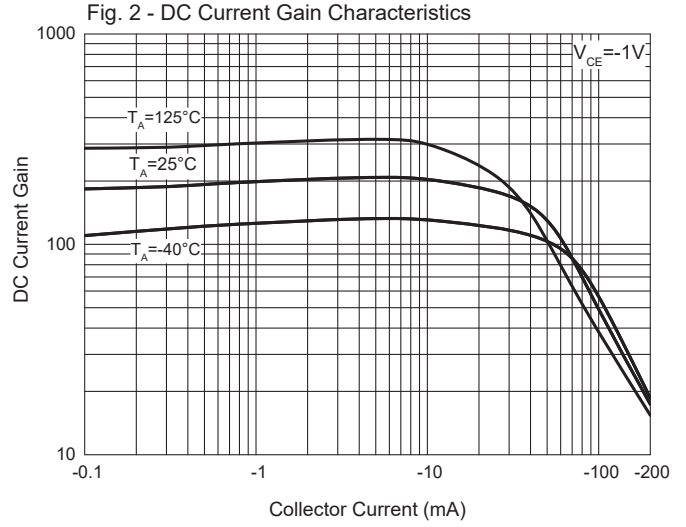
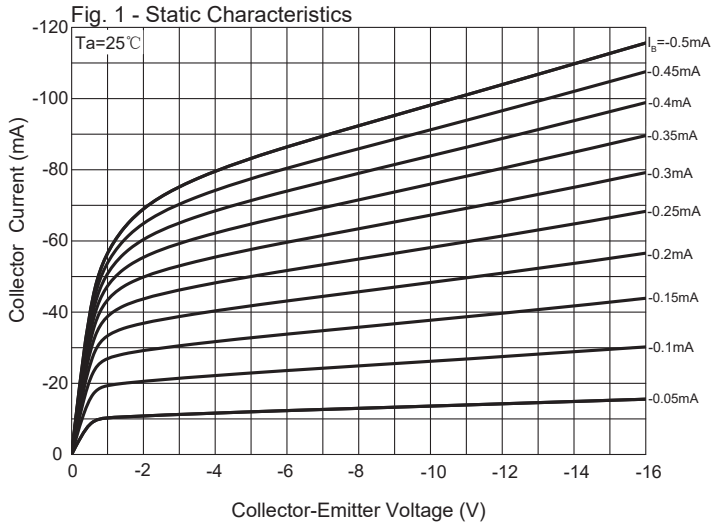
### Marking Code



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40			V	$I_C = -10\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40			V	$I_C = -1mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -10\mu A, I_C = 0$
Collector-Base Cutoff Current	$I_{CBO}$			-50	nA	$V_{CB} = -30V, I_E = 0$
Emitter-Base Cutoff Current	$I_{EBO}$			-50	nA	$V_{EB} = -5V, I_C = 0$
DC Current Gain	$h_{FE(1)}$	40				$V_{CE} = -1V, I_C = -0.1mA$
	$h_{FE(2)}$	70				$V_{CE} = -1V, I_C = -1mA$
	$h_{FE(3)}$	100		300		$V_{CE} = -1V, I_C = -10mA$
	$h_{FE(4)}$	60				$V_{CE} = -1V, I_C = -50mA$
	$h_{FE(5)}$	30				$V_{CE} = -1V, I_C = -100mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.25	V	$I_C = -10mA, I_B = -1mA$
				-0.4	V	$I_C = -50mA, I_B = -5mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-0.65		-0.85	V	$I_C = -10mA, I_B = -1mA$
				-0.95	V	$I_C = -50mA, I_B = -5mA$
Transition Frequency	$f_T$	250			MHz	$V_{CE} = -20V, I_C = -10mA, f = 100MHz$
Output Capacitance	$C_{ob}$			4.5	pF	$V_{CB} = -5V, I_E = 0, f = 1MHz$
Noise Figure	NF			4	dB	$V_{CE} = -5V, I_C = -0.1mA$ $R_S = 1K\Omega, f = 1KHz$
Delay Time	$t_d$			35	ns	$V_{CC} = -3V, I_C = -10mA$
Rise Time	$t_r$			35	ns	$V_{CE} = -0.5V, I_{B1} = -I_{B2} = -1mA$
Storage Time	$t_s$			225	ns	$V_{CC} = -3V, I_C = -10mA$
Fall Time	$t_f$			75	ns	$I_{B1} = I_{B2} = -1mA$

**Curve Characteristics**



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel
Part Number-TPQ2	Tape&Reel: 3Kpcs/Reel

For packaging details, go to our website at <https://www.mccsemi.com/pdf/ProductPackaging/SOT-363%20Package.pdf>

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