

MMDT3906-AU

Dual PNP General Purpose Switching Transistor

VOLTAGE 40 Volt **POWER** 200 mWatt

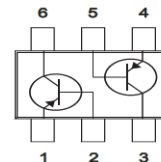
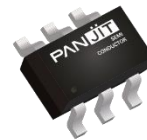
FEATURES

- PNP epitaxial silicon, planar design
- Collector-emitter voltage $V_{CE} = -40V$
- Collector current $I_C = -200mA$
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case : SOT-363, Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.006 grams

SOT-363



ABSOLUTE RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	-40	V
Collector - Base Voltage	V_{CBO}	-40	V
Emitter - Base Voltage	V_{EBO}	-5.0	V
Collector Current - Continuous	I_C	-200	mA

THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	P_{TOT}	200	mW
Thermal Resistance , Junction to Ambient	R_{JA}	625	°C/W
Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in.

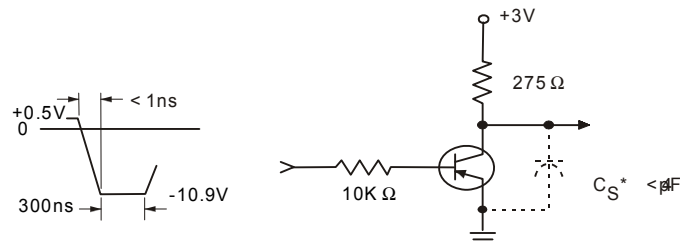
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ELECTRICAL CHARACTERISTICS

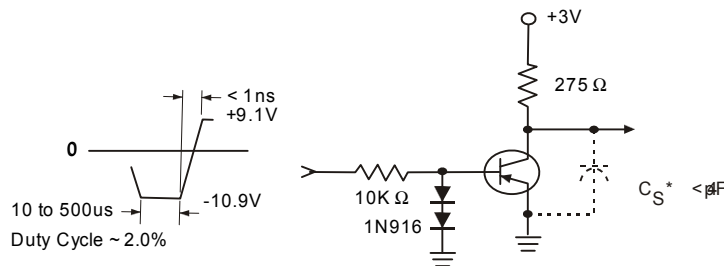
PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1.0mA, I_B = 0$	-40	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-40	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5.0	-	-	V
Base Cutoff Current	I_{BI}	$V_{CE} = -30V, V_{EB} = -3.0V$	-	-	-50	nA
Collector Cutoff Current	I_{CEX}	$V_{CE} = -30V, V_{EB} = -3.0V$	-	-	-50	nA
DC Current Gain (Note 2)	h_{FE}	$I_C = -0.1mA, V_{CE} = -1.0V$ $I_C = -1.0mA, V_{CE} = -1.0V$ $I_C = -10mA, V_{CE} = -1.0V$ $I_C = -50mA, V_{CE} = -1.0V$ $I_C = -100mA, V_{CE} = -1.0V$	60 80 100 60 30	- - - - -	- - 300 - -	-
Collector - Emitter Saturation Voltage (Note 2)	$V_{CE(SAT)}$	$I_C = -10mA, I_B = -1.0mA$ $I_C = -50mA, I_B = -5.0mA$	-	-	-0.25 -0.4	V
Base - Emitter Saturation Voltage (Note 2)	$V_{BE(SAT)}$	$I_C = -10mA, I_B = -1.0mA$ $I_C = -50mA, I_B = -5.0mA$	-0.65 -	- -	-0.85 -0.95	V
Collector - Base Capacitance	C_{CBO}	$V_{CB} = -5V, I_E = 0, f = 1MHz$	-	-	4.0	pF
Emitter - Base Capacitance	C_{EBO}	$V_{CB} = -0.5V, I_C = 0, f = 1MHz$	-	-	10	pF
Delay Time	t_d	$V_{CC} = -3V, V_{BE} = -0.5V,$ $I_C = -10mA, I_B = -1.0mA$	-	-	35	ns
Rise Time	t_r	$V_{CC} = -3V, V_{BE} = -0.5V,$ $I_C = -10mA, I_B = -1.0mA$	-	-	35	ns
Storage Time	t_s	$V_{CC} = -3V, I_C = -10mA$ $I_{B1} = I_{B2} = -1.0mA$	-	-	225	ns
Fall Time	t_f	$V_{CC} = -3V, I_C = -10mA$ $I_{B1} = I_{B2} = 1.0mA$	-	-	75	ns

Note 2: Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.

SWITCHING TIME EQUIVALENT TEST CIRCUITS



Delay and Rise Time Equivalent Test Circuit



Storage and Fall Time Equivalent Test Circuit

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ELECTRICAL CHARACTERISTICS CURVE

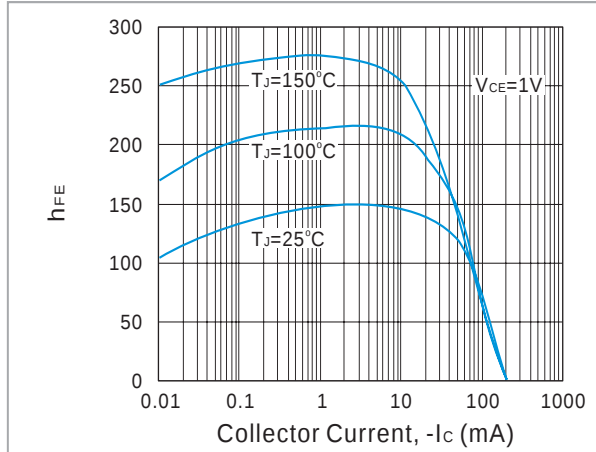


Fig. 1. Typical h_{FE} vs Collector Current

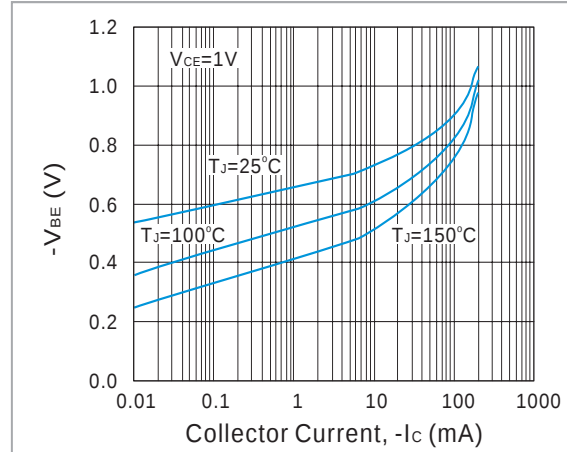


Fig. 2. Typical V_{BE} vs Collector Current

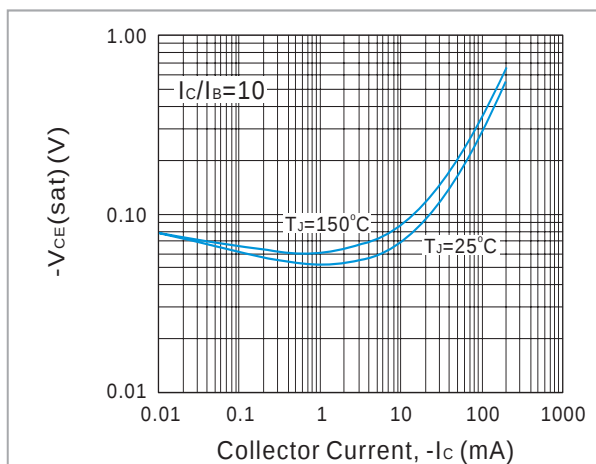


Fig. 3. Typical $V_{CE(sat)}$ vs Collector Current

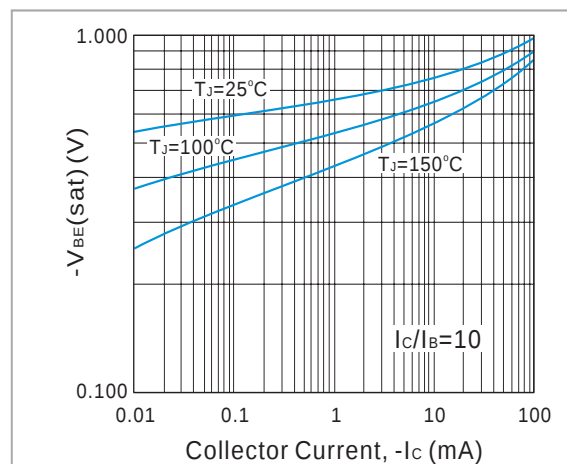


Fig. 4. Typical $V_{BE(sat)}$ vs Collector Current

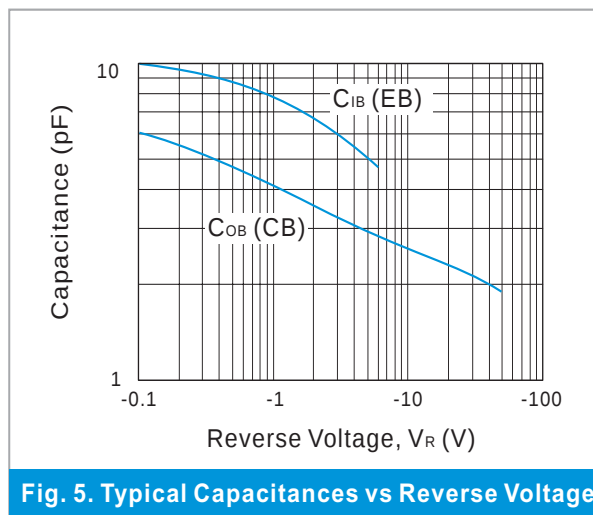


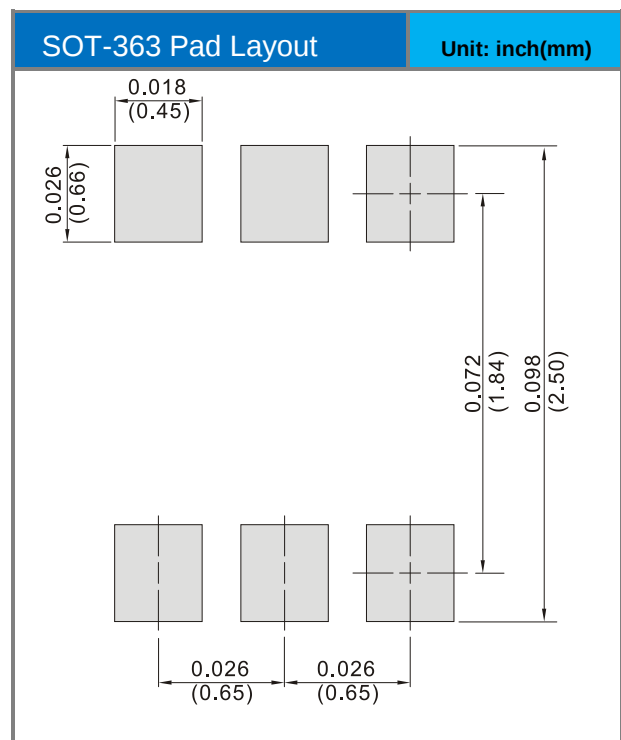
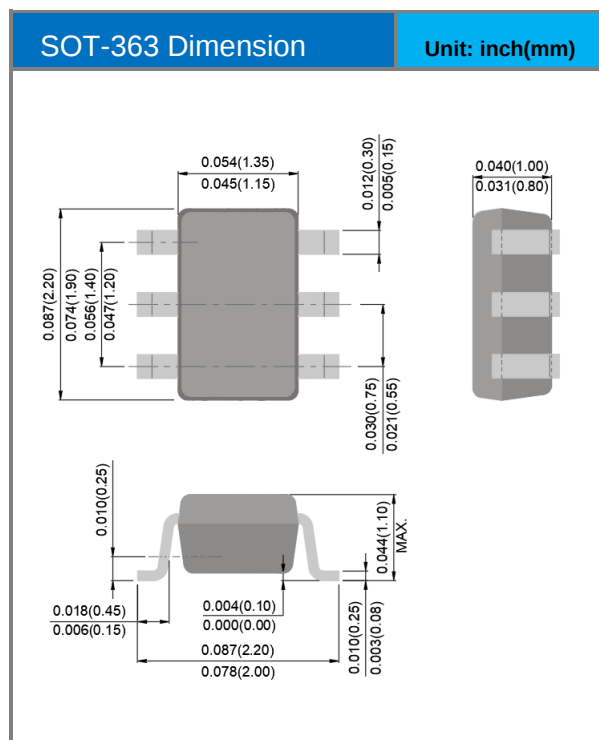
Fig. 5. Typical Capacitances vs Reverse Voltage

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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MMDT3906-AU	SOT-363	3K pcs / 7" reel	S2A
MMDT3906-AU	SOT-363	10K pcs / 13" reel	S2A

Packaging Information & Mounting Pad Layout



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