

# MMDT2907AQ

## DUAL PNP GENERAL PURPOSE SWITCHING TRANSISTOR

<b>VOLTAGE</b>	<b>60 Volt</b>	<b>POWER</b>	<b>150 mW</b>
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**SOT-363** Unit : inch(mm)

### FEATURES

- PNP epitaxial silicon, planar design
- Collector-emitter voltage  $V_{CE} = -60V$
- Collector current  $I_C = -600mA$
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

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

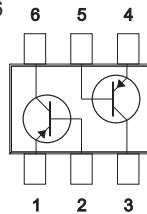
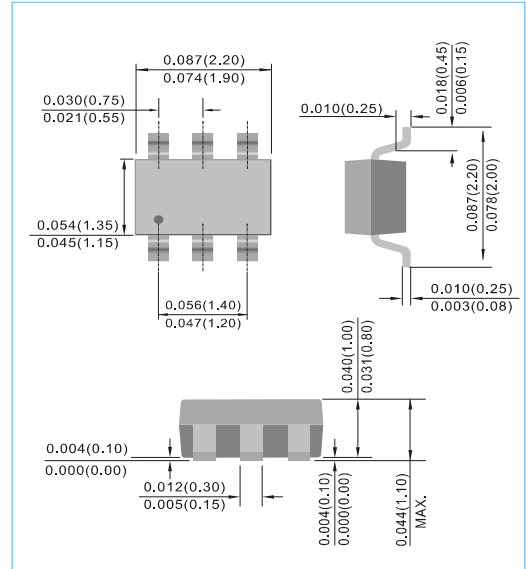


Fig.53



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
Collector-Emitter Voltage	$V_{CEO}$	-60	V
Collector-Base Voltage	$V_{CBO}$	-60	V
Emitter-Base Voltage	$V_{EBO}$	-5.0	V
Collector Current-Continuous	$I_C$	-600	mA

### THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Max Power Dissipation (Note 1)	$P_{TOT}$	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	830	$^{\circ}C / W$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$
Junction Temperature	$T_J$	-55 to +150	$^{\circ}C$

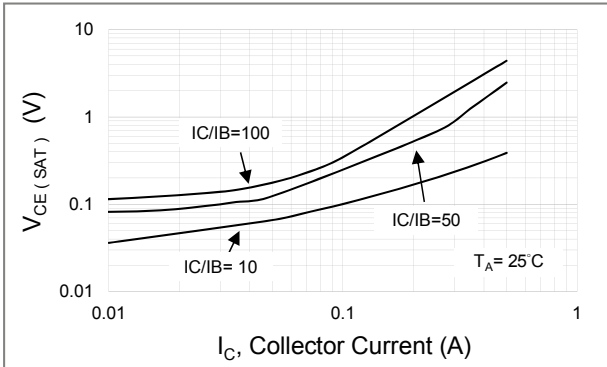
Note 1 : Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in.

# MMDT2907AQ

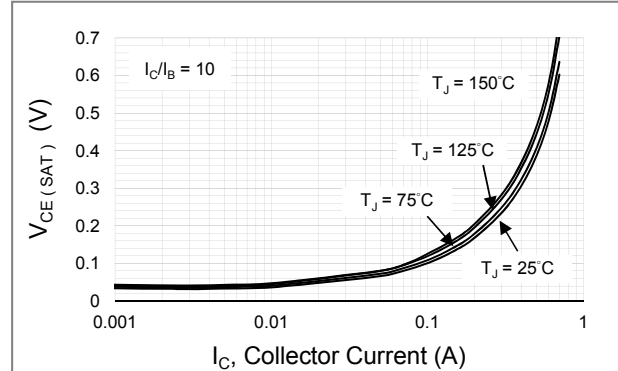
## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Collector-Emitter Breakdown Voltage	V <sub>(BR)</sub> CEO	I <sub>C</sub> =-10mA, I <sub>B</sub> =0	-60	-	-	V
Collector-Base Breakdown Voltage	V <sub>(BR)</sub> CBO	I <sub>C</sub> =-10μA, I <sub>E</sub> =0	-60	-	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)</sub> EBO	I <sub>E</sub> =-10μA, I <sub>C</sub> =0	-5.0	-	-	V
Base Cutoff Current	I <sub>BL</sub>	V <sub>CE</sub> =-30V, V <sub>EB</sub> =-0.5V	-	-	-50	nA
Collector Cutoff Current	I <sub>CEX</sub>	V <sub>CE</sub> =-30V, V <sub>EB</sub> =-0.5V	-	-	-50	nA
	I <sub>CBO</sub>	V <sub>CB</sub> =-50V, I <sub>E</sub> =0	-	-	-10	nA
		V <sub>CB</sub> =-50V, I <sub>E</sub> =0 T <sub>J</sub> =125°C	-	-	-10	μA
DC Current Gain	h <sub>FE</sub>	I <sub>C</sub> =-0.1mA, V <sub>CE</sub> =-10V I <sub>C</sub> =-1.0mA, V <sub>CE</sub> =-10V I <sub>C</sub> =-10mA, V <sub>CE</sub> =-10V I <sub>C</sub> =-150mA, V <sub>CE</sub> =-10V I <sub>C</sub> =-500mA, V <sub>CE</sub> =-10V	75 100 100 100 50	- - - - -	- - - 300 -	-
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA	- -	- -	-0.4 -1.6	V
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA	- -	- -	-1.3 -2.6	V
Collector-Base Capacitance	C <sub>CBO</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz	-	-	8.0	pF
Emitter-Base Capacitance	C <sub>EBO</sub>	V <sub>CB</sub> =-2V, I <sub>C</sub> =0, f=1MHz	-	-	30	pF
Current Gain-Bandwidth Product	F <sub>T</sub>	I <sub>C</sub> =-50mA, V <sub>CE</sub> =-20V, f=100MHz	200	-	-	MHz
Turn-On Time	t <sub>on</sub>	V <sub>CC</sub> =-30V, V <sub>BE</sub> =-0.5V, I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA	-	-	45	ns
Delay Time	t <sub>d</sub>	V <sub>CC</sub> =-30V, V <sub>BE</sub> =-0.5V, I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA	-	-	20	ns
Rise Time	t <sub>r</sub>	V <sub>CC</sub> =-30V, V <sub>BE</sub> =-0.5V, I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA	-	-	40	ns
Turn-Off Time	t <sub>off</sub>	V <sub>CC</sub> =-6V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA	-	-	250	ns
Storage Time	t <sub>s</sub>	V <sub>CC</sub> =-6V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA	-	-	230	ns
Fall Time	t <sub>f</sub>	V <sub>CC</sub> =-6V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA	-	-	30	ns

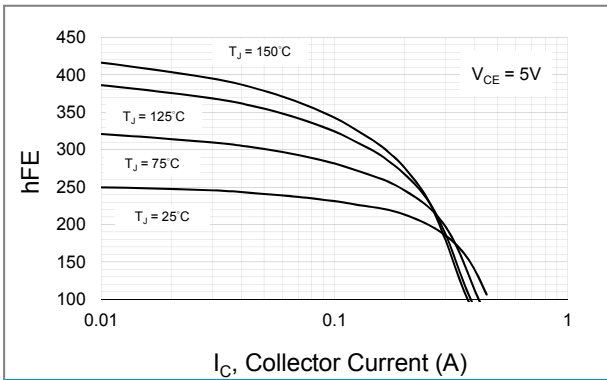
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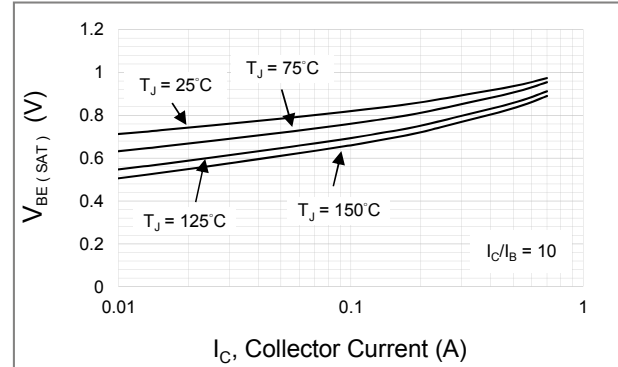
**Fig.1 Typical Collector-Emitter Saturation Voltage**



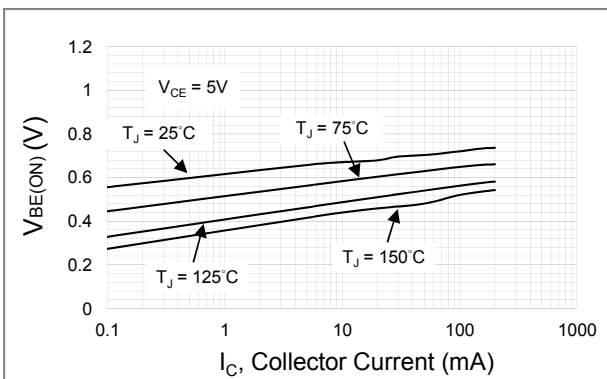
**Fig.2 Typical Collector-Emitter Saturation Voltage**



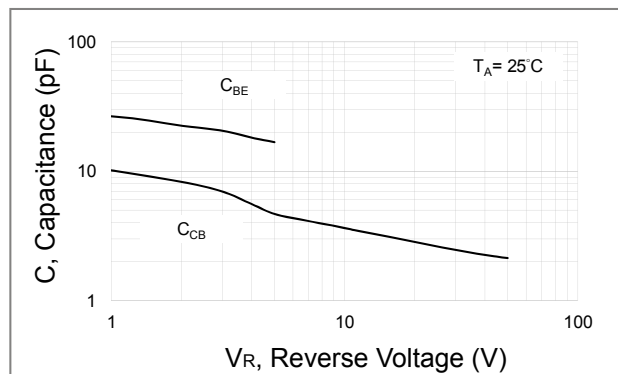
**Fig.3 Typical DC Current Gain vs Collector Current**



**Fig.4 Typical Base-Emitter Saturation Voltage**



**Fig.5 Typical Base - Emitter Voltage vs Collector Current**



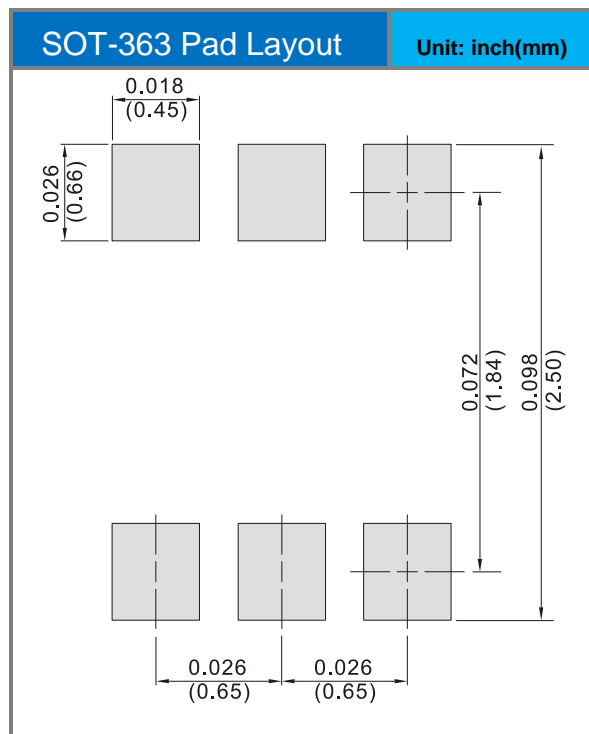
**Fig.6 Typical Capacitance**

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## Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MMDT2907AQ	SOT-363	3K pcs / 7" reel	M7Q

## Mounting Pad Layout



## **MMDT2907AQ**

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