



MMDT3906

Preliminary

PNP EPITAXIAL SILICON TRANSISTOR

DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

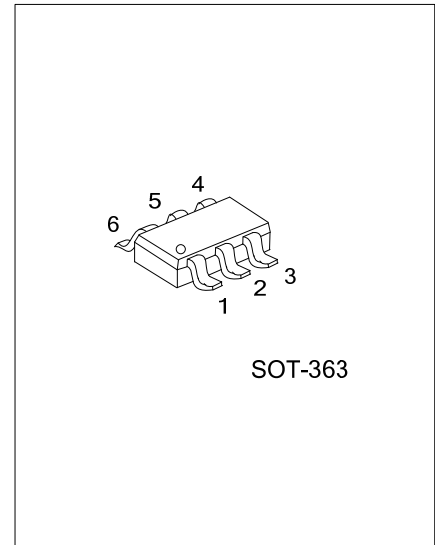
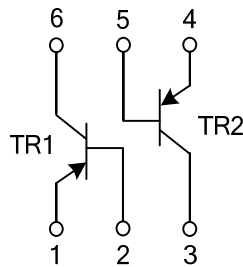
■ DESCRIPTION

The UTC **MMDT3906** is a Dual PNP small signal surface mount transistor. It's suitable for low power amplification and switch.

■ FEATURES

- * Suitable for Low Power Amplification and Switching
- * Epitaxial Planar Die Construction
- * Extremely-Small Surface Mount Package

■ EQUIVALENT CIRCUIT

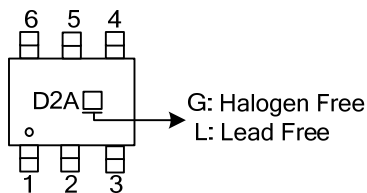


■ ORDERING INFORMATION

Ordering Number		Package							Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
MMDT3906L-AL6-R	MMDT3906G-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

<p>MMDT3906L-AL6-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Lead Free 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AL6: SOT-363 (3) Halogen Free, L: Lead Free
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current-Continuous	I_C	-200	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	625	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF Characteristics (Note)						
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=-10\mu\text{A}, I_E=0$	-40			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=-1\text{mA}, I_B=0$	-40			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Collector Cutoff Current	I_{CEX}	$V_{CE}=-30\text{V}, V_{EB}=-3\text{V}$			-50	nA
Base Cutoff Current	I_{BL}	$V_{CE}=-30\text{V}, V_{EB}=-3\text{V}$			-50	nA
ON Characteristics (Note)						
DC Current Gain	h_{FE1}	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	60			
	h_{FE2}	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	80			
	h_{FE3}	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100		300	
	h_{FE4}	$V_{CE}=-1\text{V}, I_C=-50\text{mA}$	60			
	h_{FE5}	$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	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
Small Signal Characteristics						
Output Capacitance	C_{OB}	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Current Gain-Bandwidth Product	f_T	$V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	250			MHz
Switching Characteristics						
Turn on Time	t_{ON}	$V_{CC}=-3\text{V}, V_{BE}=-0.5\text{V}, I_C=-10\text{mA}, I_{B1}=-1\text{mA}$			70	ns
Turn off Time	t_{OFF}	$I_{B1}=I_{B2}=-1\text{mA}$			300	ns

Note: Pulse test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

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