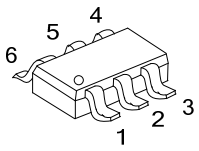
MMDT3906 Preliminary ***PNP EPITAXIAL SILICON TRANSISTOR***

DUAL PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR



SOT-363

■ 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

■ ORDERING INFORMATION

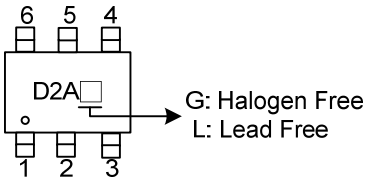
Ordering Number		Package	Packing
Lead Free	Halogen Free		
MMDT3906L-AL6-R	MMDT3906G-AL6-R	SOT-363	Tape Reel

MMDT3906L-AL6-R
(1)Packing Type
(2)Package Type
(3)Lead Free

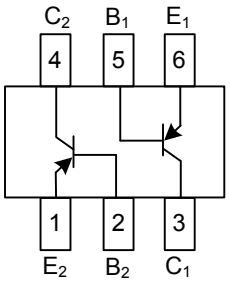
(1) R: Tape Reel
(2) AL6: SOT-363
(3) Halogen Free, L: Lead Free

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■ MARKING



■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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	-55~+150	°C
Storage Temperature	T_{STG}	-55~+150	°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°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	625	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF Characteristics (Note)						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-10 μA, I_E=0	-40			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=-1.0mA, I_B=0	-40			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-10μA, I_C=0	-5.0			V
Collector Cutoff Current	I_{CEX}	V_{CB}= -30V, $V_{EB(OFF)}$=-3.0V			-50	nA
Base Cutoff Current	I_{BL}	V_{EB}=-30V, $V_{EB(OFF)}$=-3.0V			-50	nA
ON Characteristics (Note)						
DC Current Gain	h_{FE}	I_C=-100μA, V_{CE}=-1.0V	60			
		I_C=-1.0mA, V_{CE}=-1.0V	80			
		I_C=-10mA, V_{CE}=-1.0V	100		300	
		I_C=-50mA, V_{CE}=-1.0V	60			
		I_C=-100mA, V_{CE}=-1.0V	30			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=-10mA, I_B=-1.0mA			-0.25	V
		I_C=-50mA, I_B=-5.0mA			-0.40	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=-10mA, I_B=-1.0mA	-0.65		-0.85	V
		I_C=-50mA, I_B=-5.0mA			-0.95	V
Small Signal Characteristics						
Output Capacitance	C_{OBO}	V_{CB}=-5.0V, I_E=0, f=1.0MHz			4.5	pF
Input Capacitance	C_{IBO}	V_{EB}=-0.5V, I_C=0, f=1.0MHz			10	pF
Input Impedance	h_{IE}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	2.0		12	kΩ
Voltage Feedback Ratio	h_{RE}		0.1		10	$\times 10^{-4}$
Small Signal Current Gain	h_{FE}		100		400	
Output Admittance	h_{OE}		3.0		60	μS
Current Gain-Bandwidth Product	f_T	V_{CE}=-20V, I_C=-10mA, f=100MHz	250			MHz
Noise Figure	NF	V_{CE}=-5.0V, I_C=-100μA, R_S=1.0kΩ, f=1.0kHz			4.0	dB
Switching Characteristics						
Delay Time	t_D	V_{CC}=-3.0V, I_C= -10mA, $V_{BE(OFF)}$=0.5V, I_{B1}= -1.0mA			35	ns
Rise Time	t_R				35	ns
Storage Time	t_S	V_{CC}=-3.0V, I_C= -10mA, I_{B1}= I_{B2}=-1.0mA			225	ns
Fall Time	t_F				75	ns

Note: Short duration pulse test used to minimize self-heating effect.

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