



MMDT5401

Preliminary

DUAL TRANSISTOR

HIGH VOLTAGE SWITCHING TRANSISTOR

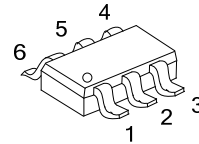
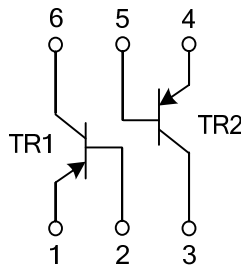
DESCRIPTION

The UTC **5401** is a high voltage fast-switching dual PNP transistor. It is characterized with high breakdown voltage, high current gain and high switching speed.

FEATURES

- * High Collector-Emitter Voltage: $V_{CE0} = -150V$
- * High current gain

EQUIVALENT CIRCUIT



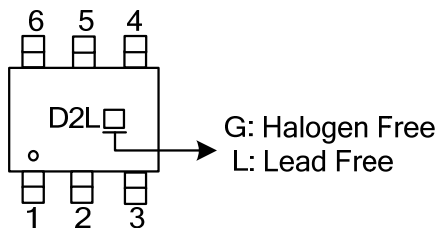
SOT-363

ORDERING INFORMATION

Ordering Number		Package							Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
MMDT5401L-AL6-R	MMDT5401G-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

MMDT5401L-AL6-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL6: SOT-363
	(3)Lead Free	(3) G:Halogen Free, L: Lead Free

MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector -Base Voltage	V_{CBO}	-160	V
Collector -Emitter Voltage	V_{CEO}	-150	V
Emitter -Base Voltage	V_{EBO}	-5	V
DC Collector Current	I_C	-600	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=-100\mu\text{A}, I_E=0$	-160			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=-1\text{mA}, I_B=0$	-150			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Collector Cut-off Current	I_{CBO}	$V_{CB}=-120\text{V}, I_E=0$			-50	nA
Emitter Cut-off Current	I_{EBO}	$V_{BE}=-3\text{V}, I_C=0$			-50	nA
DC Current Gain(note)	h_{FE}	$V_{CE}=-5\text{V}, I_C=-1\text{mA}$	80			
		$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	80	160	400	
		$V_{CE}=-5\text{V}, I_C=-50\text{mA}$	80			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$			-0.2	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$			-0.5	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$			-1	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$			-1	
Current Gain Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	100		300	MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$			6.0	pF
Noise Figure	NF	$I_C=-0.25\text{mA}, V_{CE}=-5\text{V}$ $R_S=1\text{k}\Omega, f=10\text{Hz} \sim 15.7\text{kHz}$			8	dB

Note: Pulse test: $PW < 300\mu\text{s}$, Duty Cycle $< 2\%$

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