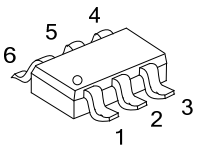
MMDT2907A

DUAL TRANSISTOR

DUAL PNP GENERAL PURPOSE AMPLIFIER

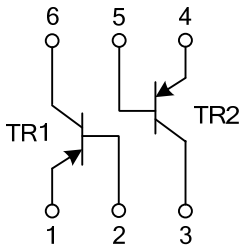


SOT-363

■ DESCRIPTION

The UTC **MMDT2907A** is an Dual PNP general purpose amplifier. it's suitable for a medium power amplifier and switch requiring collector currents up to 500mA.

■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
MMDT2907AL-AL6-R	MMDT2907AG-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

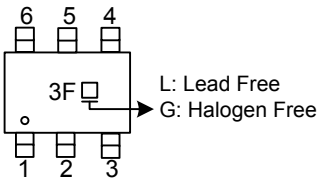
Note: Pin assignment: E: Emitter B: Base C: Collector

MMDT2907AG-AL6-R

(1)Packing Type
(2)Package Type
(3)Green Package

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

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CEO}	-60	V
Collector-Base Voltage	V_{CBO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current Continuous	I_C	-600	mA
Power Dissipation	P_D	300	mW
Junction Temperature	T_J	+150	°C
Operating Temperature	T_{OPR}	-40 ~ +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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JA}	415	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage (Note)	BV_{CEO}	I_C=-10mA, I_B=0	-60			V
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=-10μA, I_E=0	-60			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=-10μA , I_C=0	-5			V
Base Cutoff Current	I_B	V_{CB}=-30V, V_{EB}=-0.5V			-50	nA
Collector Cutoff Current	I_{CEX}	V_{CE}=-30V, V_{BE}=-0.5V			-50	nA
Collector Cutoff Current	I_{CBO}	V_{CB}=-50V, I_E=0			-0.02	μA
		V_{CB}=-50V, I_E=0, T_A=150°C			-20	μA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	I_C=-0.1mA, V_{CE}=-10V	75			
		I_C=-1.0 mA, V_{CE}=-10V	100			
		I_C=-10 mA, V_{CE}=-10V	100			
		I_C=-150 mA, V_{CE}=-10V (Note)	100		300	
		I_C=-500 mA, V_{CE}=-10V (Note)	50			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=-150 mA, I_B=-15mA			-0.4	V
		I_C=-500 mA, I_B=-50mA			-1.6	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=-150 mA, I_B=-15mA (Note)			-1.3	V
		I_C=-500 mA, I_B=-50mA			-2.6	V
SMALL SIGNAL CHARACTERISTICS						
Current Gain – Bandwidth Product	f_T	I_C=-50mA, V_{CE}=-20V, f=100MHz	200			MHz
Output Capacitance	C_{ob}	V_{CB}=-10V, I_E=0, f=100kHz			8	pF
Input Capacitance	C_{ib}	V_{EB}=-2V, I_C=0, f=100kHz			30	pF
SWITCHING CHARACTERISTICS						
Turn-on Time	t_{ON}	V_{CC}=30V, I_C=-150mA, I_{B1}=-15mA			45	ns
Delay Time	t_{DLY}				10	ns
Rise Time	t_R				40	ns
Turn-off Time	t_{OFF}	V_{CC}=6V, I_C=-150mA, I_{B1}= I_{B2}=-15mA			100	ns
Storage Time	t_S				80	ns
Fall Time	t_F				30	ns

Note: Pulse Test: Pulse Width ≤ 300ms, Duty Cycle ≤ 2.0%.

■ TEST CIRCUITS

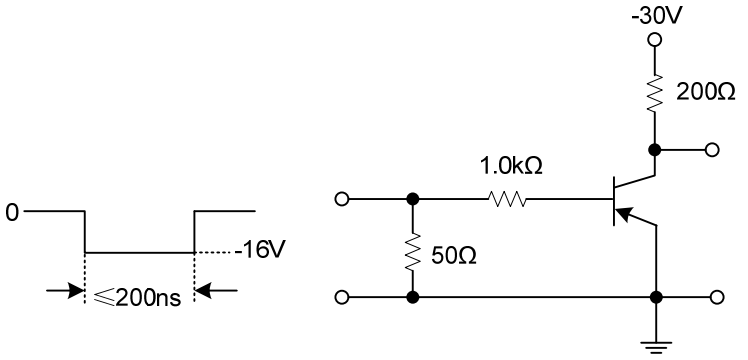


Fig 1. Saturated Turn-On Switching Time Test Circuit

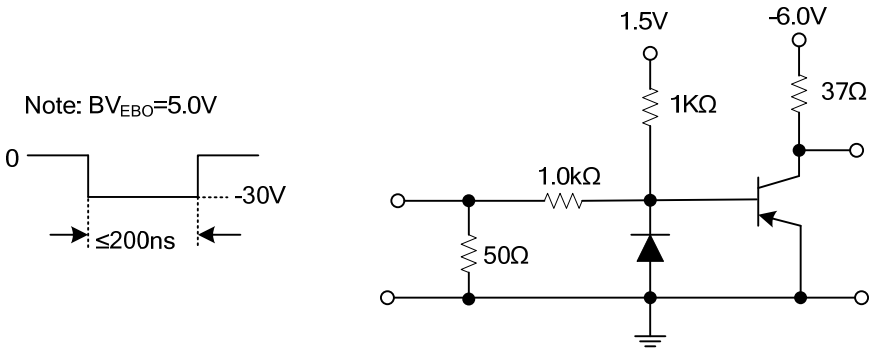
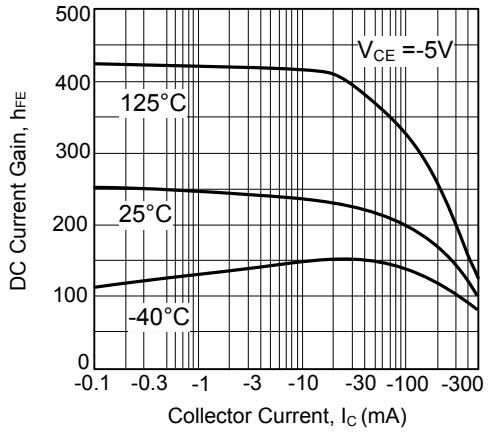


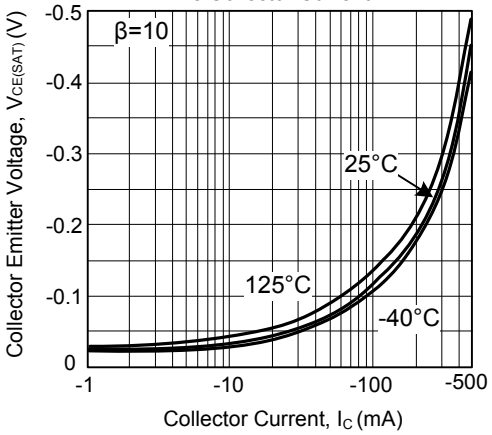
Fig 2. Saturated Turn-Off Switching Time Test Circuit

■ TYPICAL CHARACTERISTICS

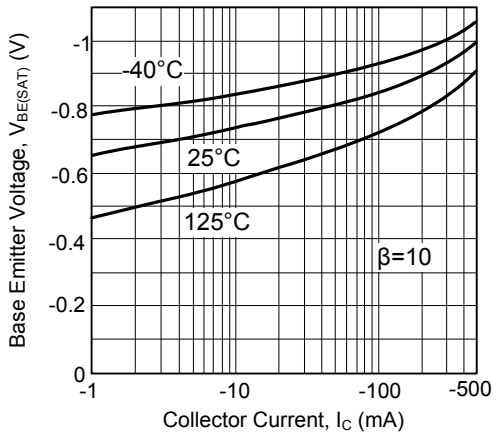
Typical Pulsed Current Gain vs Collector Current



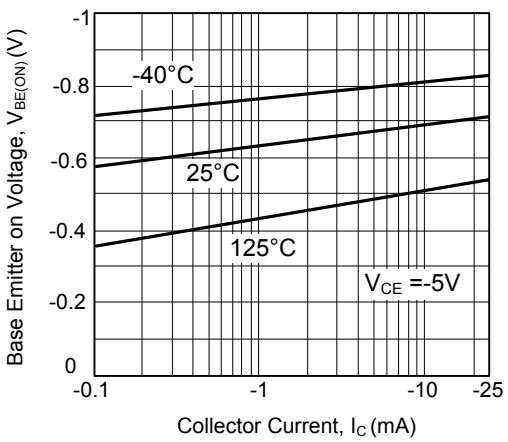
Collector Emitter Saturation Voltage vs Collector Current



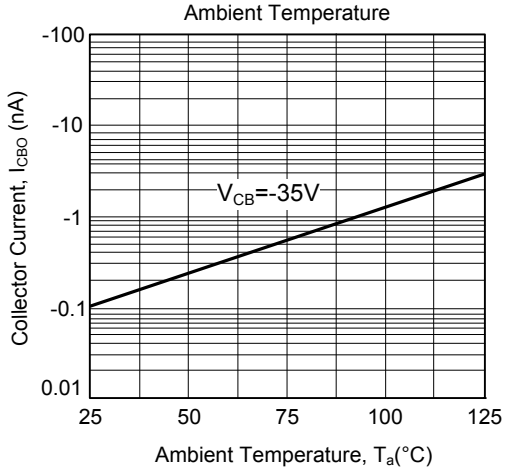
Base Emitter Saturation Voltage vs Collector Current



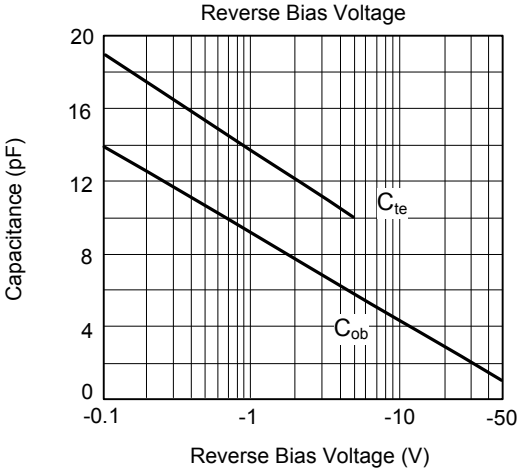
Base Emitter on Voltage vs Collector Current



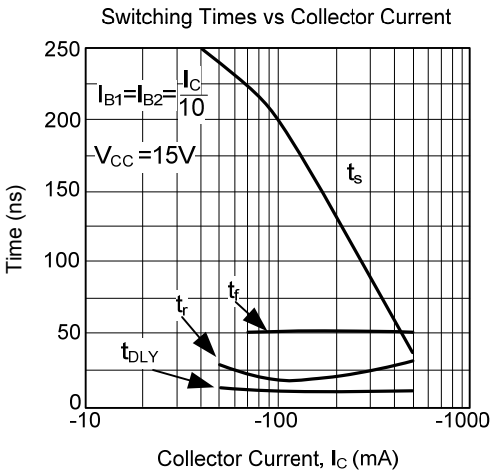
Collector Cutoff Current vs Ambient Temperature

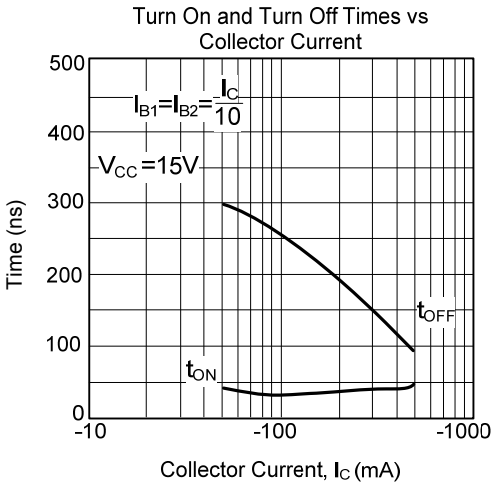


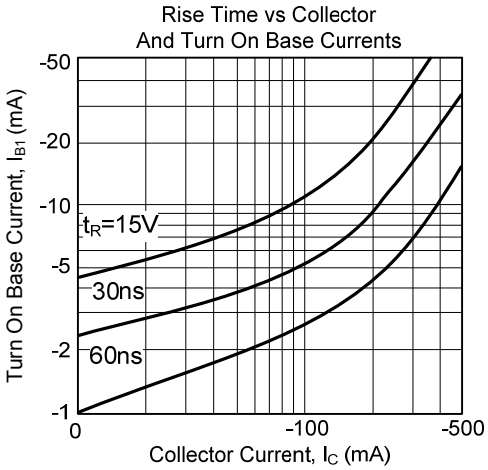
Input And Output Capacitance vs Reverse Bias Voltage



■ TYPICAL CHARACTERISTICS (Cont.)







■ TYPICAL COMMON EMITTER CHARACTERISTICS (f=1kHz)