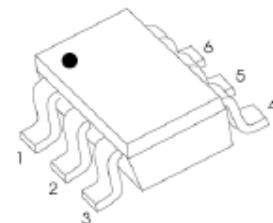
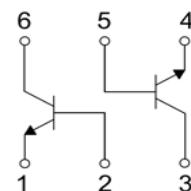


## Features

- Ideal for medium power amplification and switching
- Ultra-small surface mount package
- Complementary PNP type available MMDT2907A



**SOT-363**



**Schematic Diagram**

## Absolute Maximum Ratings

( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collect-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current-Continous	$I_C$	600	mA
Collector Power Dissipation	$P_C$	200	mW
Junction Temperature	$T_J$	-55 to +150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

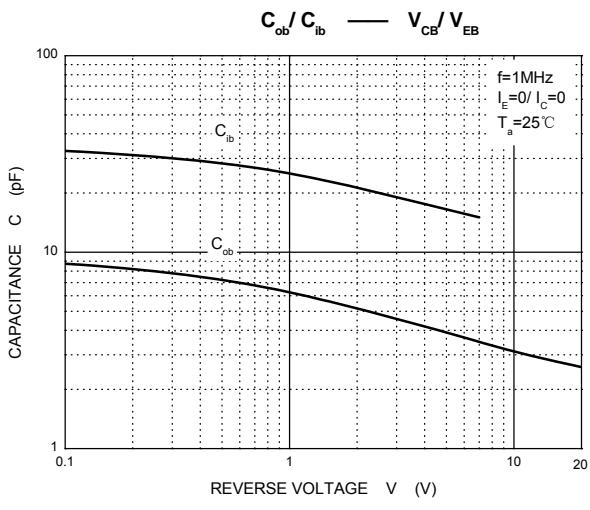
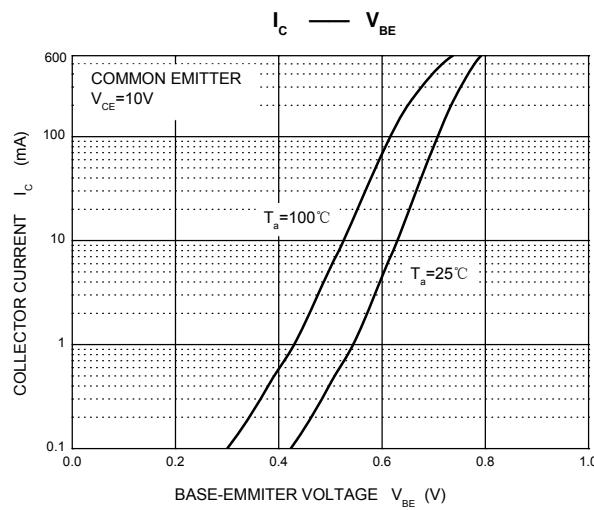
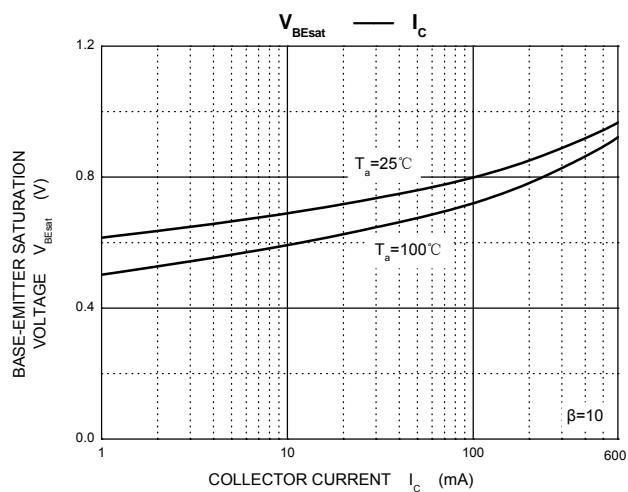
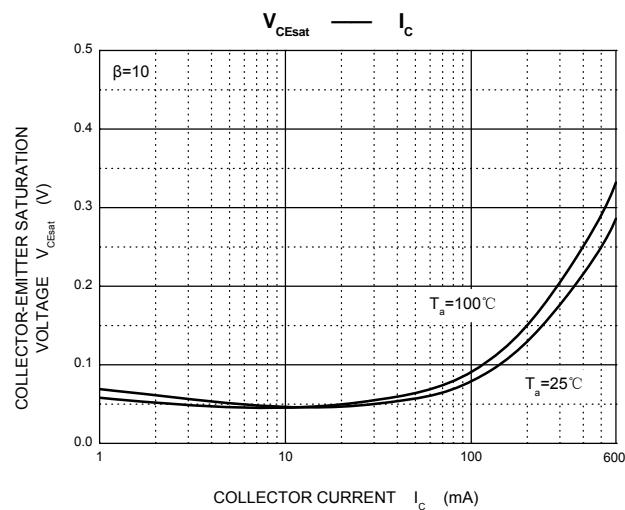
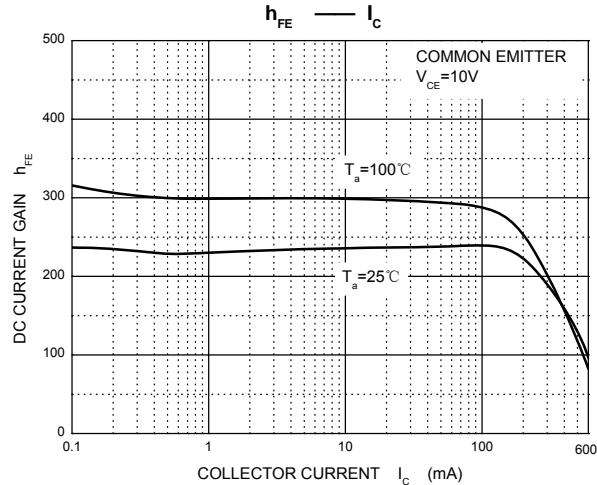
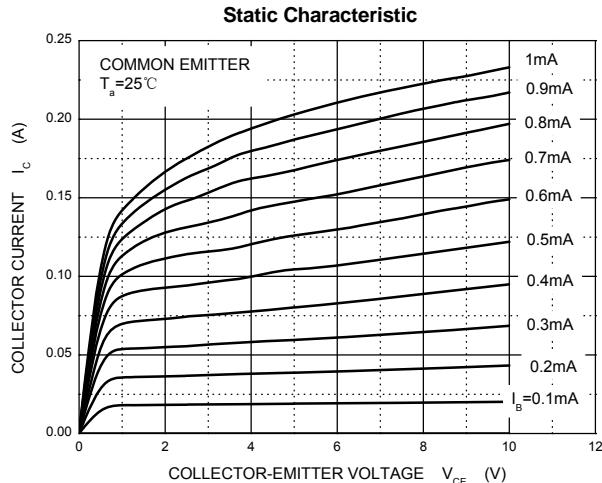
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-base Breakdown Voltage	$V_{(BR)CBO}$	$I_c=10\mu\text{A}, I_E=0$	75	--	V
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_c=10\text{mA}, I_B=0$	40	--	V
Emitter-base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_c=0$	6	--	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$	--	10	nA
Collector Cut-off Current	$I_{CEX}$	$V_{CB}=60\text{V}, I_{EB(off)}=3\text{V}$	--	10	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=3\text{V}, I_c=0$	--	10	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_c=0.1\text{mA}$	35	--	--
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_c=1\text{mA}$	50	--	--
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_c=10\text{mA}$	75	--	--
	$h_{FE(4)}$	$V_{CE}=10\text{V}, I_c=150\text{mA}$	100	300	--
	$h_{FE(5)}$	$V_{CE}=10\text{V}, I_c=500\text{mA}$	40	--	--
	$h_{FE(6)}$	$V_{CE}=1\text{V}, I_c=150\text{mA}$	35	--	--
Collector-emitter Saturation Voltage	$V_{CE(sat)1}$	$I_c=150\text{mA}, I_B=15\text{mA}$	--	0.3	V
	$V_{CE(sat)2}$	$I_c=500\text{mA}, I_B=50\text{mA}$	--	1	V
Base-emitter Saturation Voltage	$V_{BE(sat)1}$	$I_c=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
	$V_{BE(sat)2}$	$I_c=500\text{mA}, I_B=50\text{mA}$	--	2	V
Transition Frequency	$f_T$	$V_{CE}=20\text{V}, I_c=20\text{mA}, f=100\text{MHz}$	300	--	MHz
Output Capacity	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	--	8	pF
Input Capacity	$C_{ib}$	$V_{EB}=0.5\text{V}, I_c=0, f=1\text{MHz}$	--	25	pF
Noise Figure	NF	$V_{CE}=10\text{V}, I_c=100\mu\text{A}, f=1\text{KHz}, RS=1\text{k}\Omega$	--	4	dB

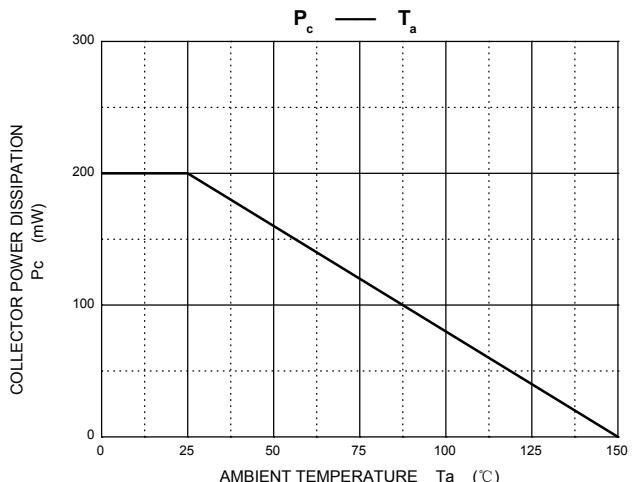
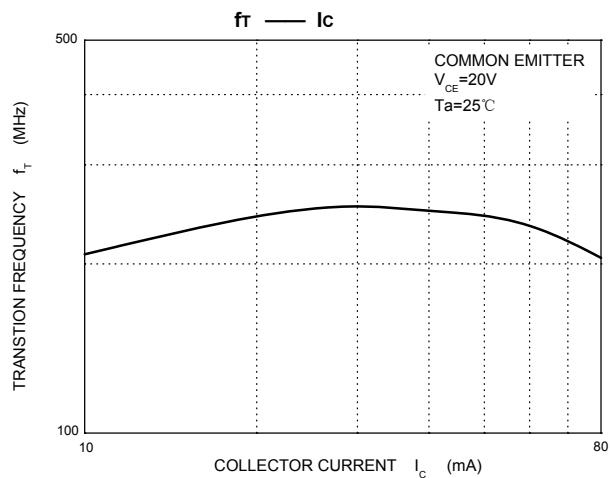
**Switching Characteristics**

Parameter	Symbol	Test Condition	Min	Max	Unit
Delay Time	$t_d$	$V_{cc}=30\text{V}, I_c=150\text{mA}, V_{BE(Off)}=0.5\text{V}, I_{B1}=15\text{mA}$	--	10	ns
Rise Time	$t_r$		--	25	ns
Storage Time	$t_s$	$V_{cc}=30\text{V}, I_c=150\text{mA}, I_{B1}=-I_{B2}=15\text{mA}$	--	225	ns
Fall Time	$t_f$		--	60	ns

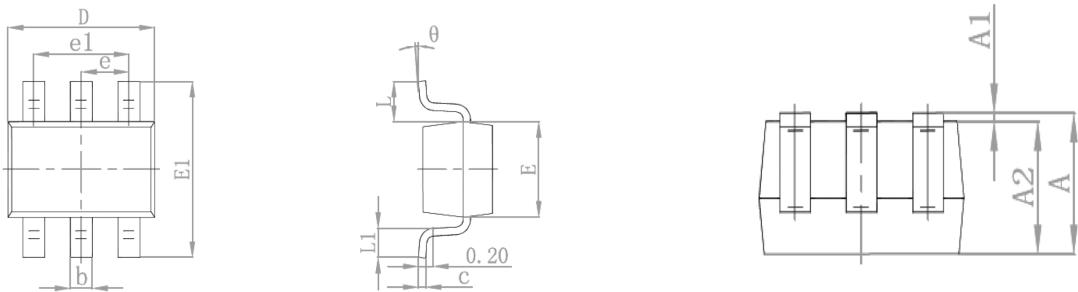
**Typical Characteristics Curves ( $T_a = 25^\circ\text{C}$  unless otherwise noted)**



**Typical Characteristics Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

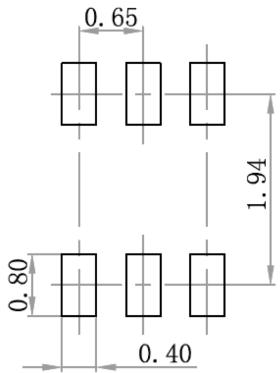


## Package Outline Dimensions SOT-363



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

## Recommended Pad Layout



### Note:

1. Controlling dimension:in millimeters
2. General tolerance:0.05mm
3. The pad layout is for reference purpose only