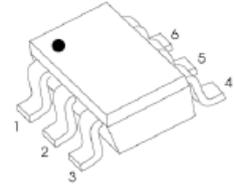


**Features**

- Epitaxial planar die construction
- Ideal for low power amplification and switching

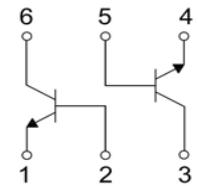


SOT-363

**Absolute Maximum Ratings**

(T<sub>A</sub> = 25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current -Continuous	I <sub>C</sub>	0.2	A
Collector Power Dissipation	P <sub>C</sub>	0.2	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

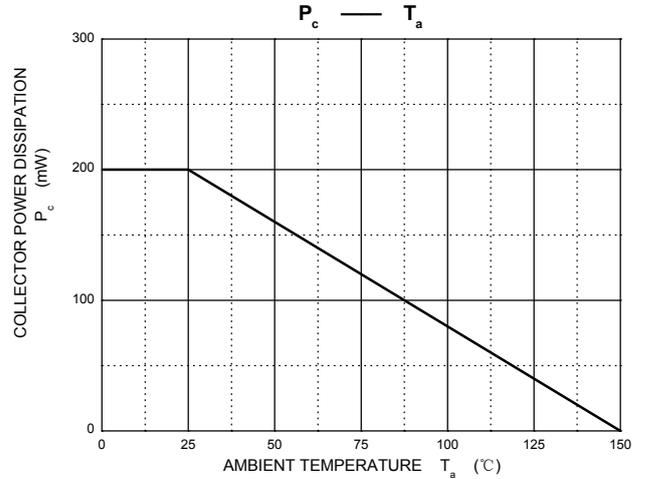
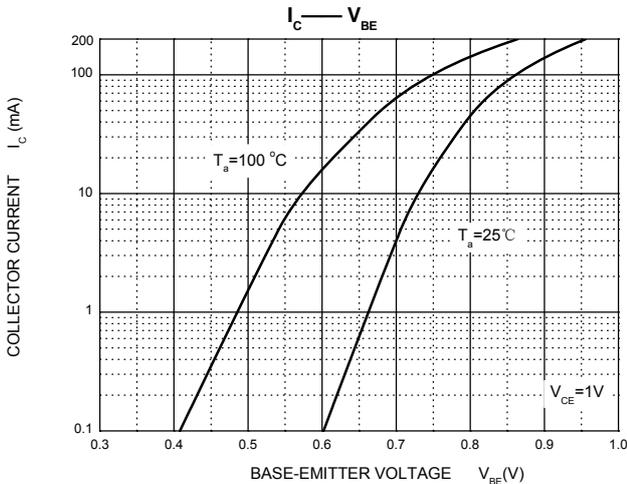
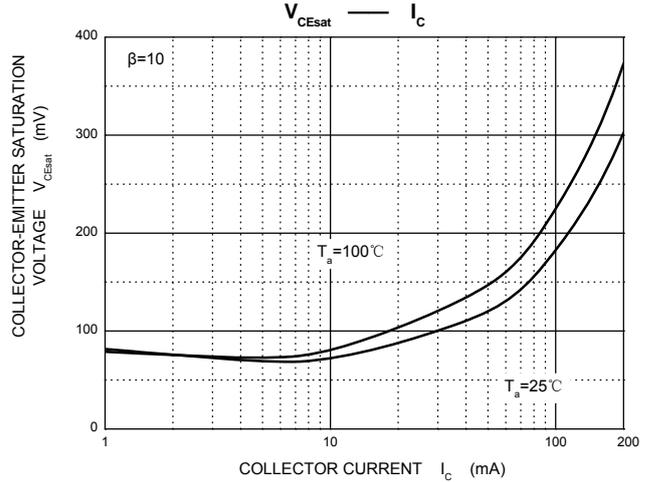
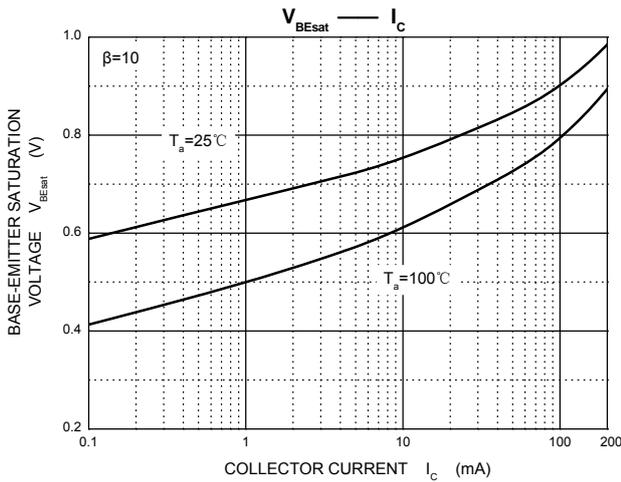
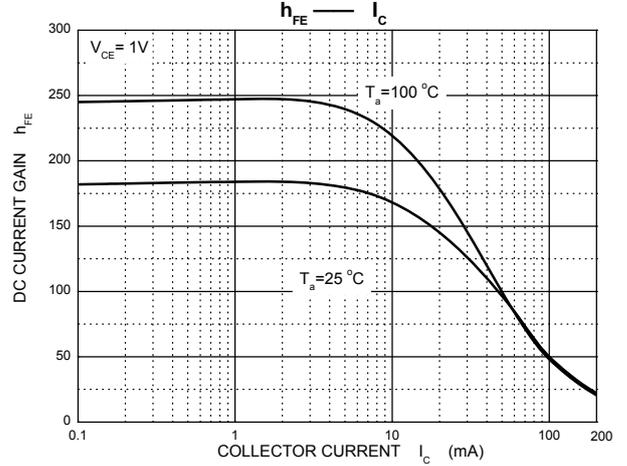
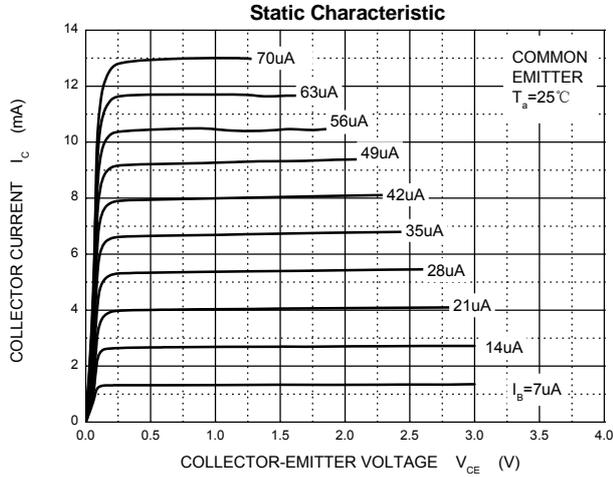


Schematic Diagram

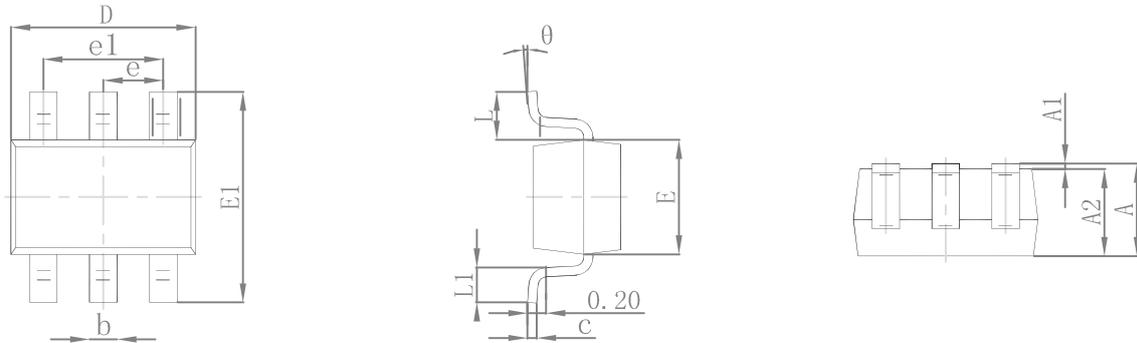
**Electrical Characteristics** (T<sub>A</sub> = 25 °C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	60	-	V
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	40	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	5	-	V
Collector Cut-Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =30V, I <sub>E</sub> =0	-	0.05	μA
Emitter Cut-Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0	-	0.05	μA
Collector Cut-Off Current	I <sub>CEX</sub>	V <sub>CE</sub> =30V, V <sub>BE(off)</sub> =3V	-	0.05	μA
DC Current Gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =0.1mA	40	-	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =1mA	70	-	
	h <sub>FE(3)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA	100	300	
	h <sub>FE(4)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =50mA	60	-	
	h <sub>FE(5)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =100mA	30	-	
Collector-Emitter Saturation Voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA	-	0.2	V
	V <sub>CE(sat)2</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA	-	0.3	V
Base-Emitter Saturation Voltage	V <sub>BE(sat)1</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA	0.65	0.85	V
	V <sub>BE(sat)2</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA	-	0.95	V
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300	-	MHz
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =5V, I <sub>E</sub> =0, f=1MHz	-	4	pF
Noise Figure	NF	V <sub>CE</sub> =5V, I <sub>C</sub> =0.1mA, f=1kHz, R <sub>S</sub> =1KΩ	-	5	dB
Delay Time	t <sub>d</sub>	V <sub>CC</sub> =3V, V <sub>BE(off)</sub> =-0.5V	-	35	nS
Rise Time	t <sub>r</sub>	I <sub>C</sub> =10mA, I <sub>B1</sub> =-I <sub>B2</sub> = 1mA	-	35	nS
Storage Time	t <sub>s</sub>	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA	-	200	nS
Fall Time	t <sub>f</sub>	I <sub>B1</sub> =-I <sub>B2</sub> =1mA	-	50	nS

**Typical Characteristic Curves**

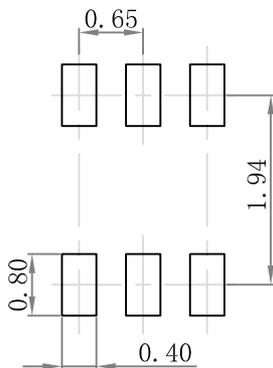


**Package Outline Dimensions SOT-363**



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
θ	0°	8°	0°	8°

**Suggested Pad Layout**



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

**Marking and Ordering Information**

Device	Package	Marking	Quantity	HSF Status
MMDT3904	SOT-363	K6N	3000pcs / Reel	RoHS Compliant