

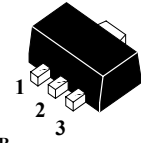
## NPN Epitaxial Planar Transistors

**(Pb)** Lead(Pb)-Free

### Features:

- \* Low Collector Saturation Voltage
- \* High Spwvd Switching
- \* For Complementary Use With PNP Type WTM2907A

SOT-89



1. BASE  
2. COLLECTOR  
3. EMITTER

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

Rating	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CBO</sub>	75	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	6.0	V
Collector Current	I <sub>C</sub>	0.6	A
Collector Power Dissipation	P <sub>D</sub>	1.2	W
Junction Temperature	T <sub>j</sub>	+150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

### Device Marking

WTM2222A = 2222A, 1P

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

Parameter	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage I <sub>C</sub> =10μA	BV <sub>CBO</sub>	75	-	-	V
Collector-Emitter Breakdown Voltage I <sub>C</sub> =10mA	BV <sub>CEO</sub>	40	-	-	V
Emitter-Base Breakdown Voltage I <sub>E</sub> =10μA	BV <sub>EBO</sub>	6.0	-	-	V
Collector Cutoff Current V <sub>CB</sub> =60V	I <sub>CB0</sub>	-	-	10	nA
Collector Cutoff Current V <sub>CB</sub> =60V, V <sub>EB(off)</sub> =3.0V	I <sub>CEX</sub>	-	-	10	nA
Collector Cutoff Current V <sub>EB</sub> =3.0V	I <sub>EBO</sub>	-	-	50	nA

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C Unless otherwise noted)**

Characteristic	Symbol	Min	Typ	Max	Unit
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**ON CHARACTERISTICS<sup>(1)</sup>**

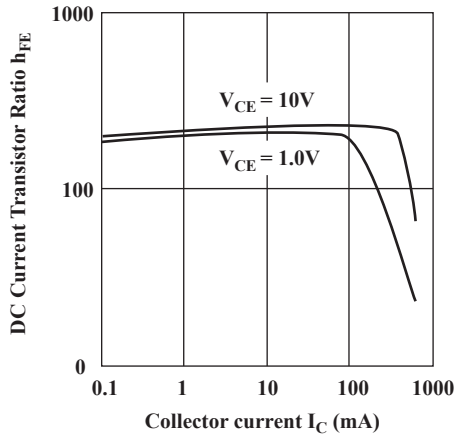
DC Current Gain					
V <sub>CE</sub> =10V, I <sub>C</sub> =100μA	h <sub>FE1</sub>	35	-	-	
V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA	h <sub>FE2</sub>	50	-	-	
V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	h <sub>FE3</sub>	75	-	-	
V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	h <sub>FE4</sub>	100	-	300	-
V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	h <sub>FE5</sub>	40	-	-	
V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA	h <sub>FE6</sub>	50	-	-	
Collector-Emitter Saturation Voltage					
I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	V <sub>CE(sat)1</sub>	-	-	300	mV
I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	V <sub>CE(sat)2</sub>	-	-	1.0	V
Base-Emitter Saturation Voltage					
I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	V <sub>BE(sat)1</sub>	-	-	1.2	V
I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	V <sub>BE(sat)2</sub>	-	-	2.0	V

1. Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

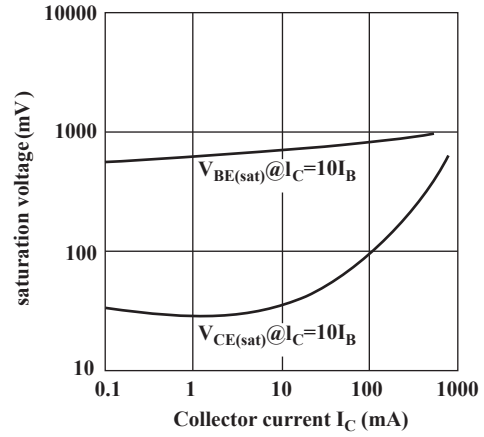
**DYNAMIC CHARACTERISTICS**

Transition Frequency					
V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz	f <sub>T</sub>	300	-	-	MHz

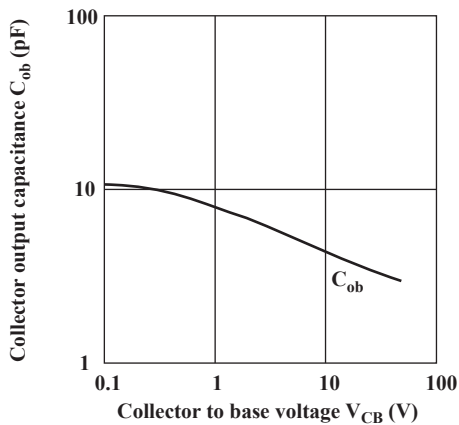
## ELECTRICAL CHARACTERISTIC CURVES



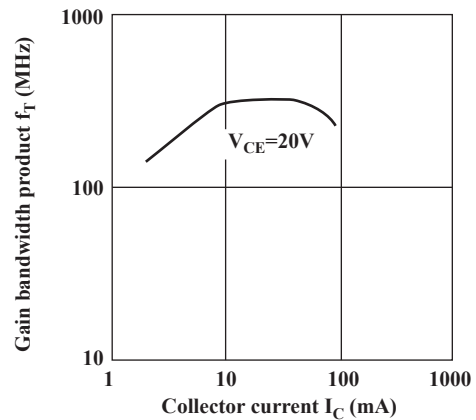
**Fig.1 Current Gain & Collector Current**



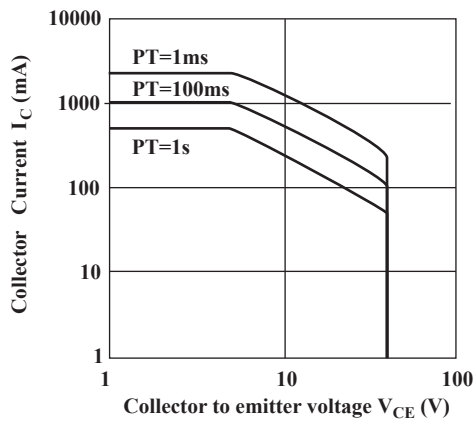
**Fig.2 Saturation Voltage & Collector Current**



**Fig.5 Capacitance & Collector to Base Voltage**



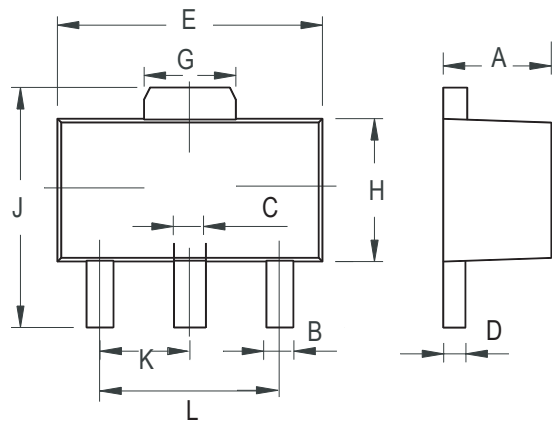
**Fig.4 Gain Bandwidth Product & Collector Current**



**Fig.6 Safe Operating Area**

**SOT-89 Outline Dimensions**

unit:mm



<b>SOT-89</b>		
<b>Dim</b>	<b>Min</b>	<b>Max</b>
<b>A</b>	1.400	1.600
<b>B</b>	0.320	0.520
<b>C</b>	0.360	0.560
<b>D</b>	0.350	0.440
<b>E</b>	4.400	4.600
<b>G</b>	1.400	1.800
<b>H</b>	2.300	2.600
<b>J</b>	3.940	4.250
<b>K</b>	1.500 TYP	
<b>L</b>	2.900	3.100