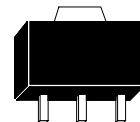


NPN Epitaxial Planar Transistor

BTN1053M3

Features

- 2W power dissipation
- Excellent H_{FE} Characteristics up to 1A
- Low Saturation Voltage
 $V_{CE(sat)}=0.15V(\text{typ})(I_C=1A, I_B=50mA)$.
- 5A peak pulse current



SOT-89

Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	75	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current(DC)	I_C	1.5	A
Collector Current(Pulsed)(Note 1)	I_{CP}	5	
Power Dissipation@ $T_a=25^{\circ}\text{C}$	P_D	1 (Note 2)	W
		2 (Note 3)	
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^{\circ}\text{C}$

Note 1: Single pulse, $P_w \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.2: When the device is mounted on a FR-4 PCB measuring $15 \times 15 \times 0.6\text{mm}$.3: When the device is mounted on a ceramic substrate measuring $40 \times 40 \times 0.6\text{mm}$.

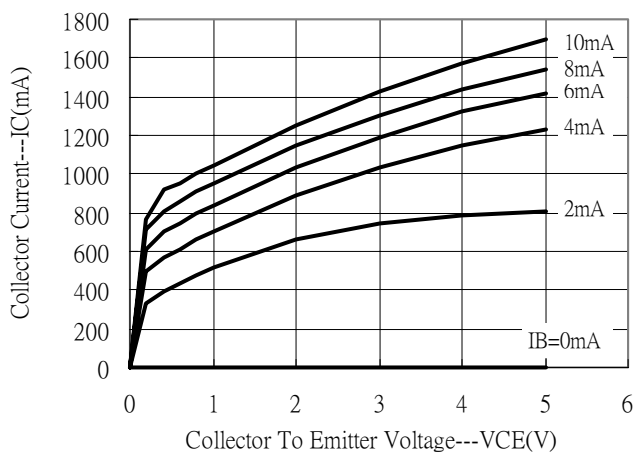
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	150	300	-	V	$I_C=100\mu A$
BV_{CES}	150	300		V	$I_C=100\mu A$
BV_{CEO}	75	100	-	V	$I_C=10mA$
BV_{EBO}	5	7.7	-	V	$I_E=100\mu A$
I_{CBO}	-	0.9	10	nA	$V_{CB}=120V$
I_{CES}	-	0.9	10	nA	$V_{CE}=120V$
I_{EBO}	-	0.6	10	nA	$V_{EB}=4V$
$V_{CE(sat)} 1 *$	-	-	40	mV	$I_C=200mA, I_B=20mA$
$V_{CE(sat)} 2 *$	-	-	200	mV	$I_C=500mA, I_B=20mA$
$V_{CE(sat)} 3 *$	-	-	1.2	V	$I_C=1A, I_B=10mA$
$V_{CE(sat)} 4 *$	-	-	500	mV	$I_C=2A, I_B=100mA$
$V_{BE(sat)} *$	-	1.1	1.2	V	$I_C=3A, I_B=100mA$
$V_{BE(on)} *$	-	1.1	1.2	V	$V_{CE}=2V, I_C=3A$
$h_{FE} 1 *$	270	-	-	-	$V_{CE}=2V, I_C=10mA$
$h_{FE} 2 *$	300	600	1200	-	$V_{CE}=2V, I_C=500mA$
$h_{FE} 3 *$	120	180-	-	-	$V_{CE}=2V, I_C=1A$
$h_{FE} 4 *$	10	-	-	-	$V_{CE}=2V, I_C=4.5A$
f_T	-	140	-	MHz	$V_{CE}=10V, I_C=50mA, f=100MHz$
Cob	-	20	-	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

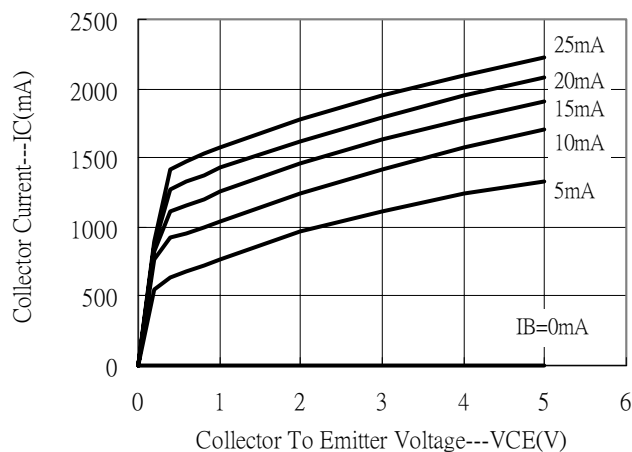
*Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Characteristic Curves

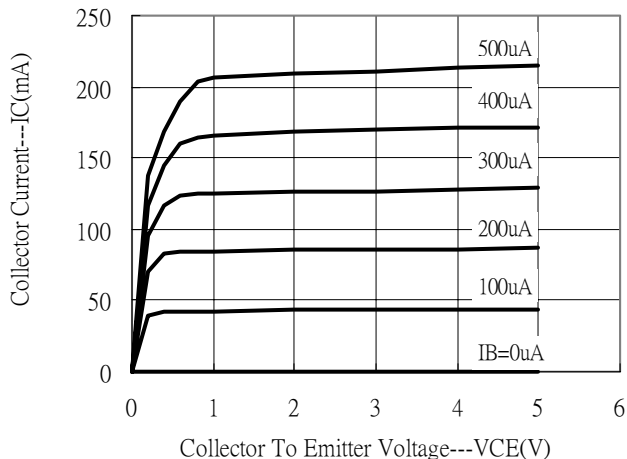
Grounded Emitter Output Characteristics



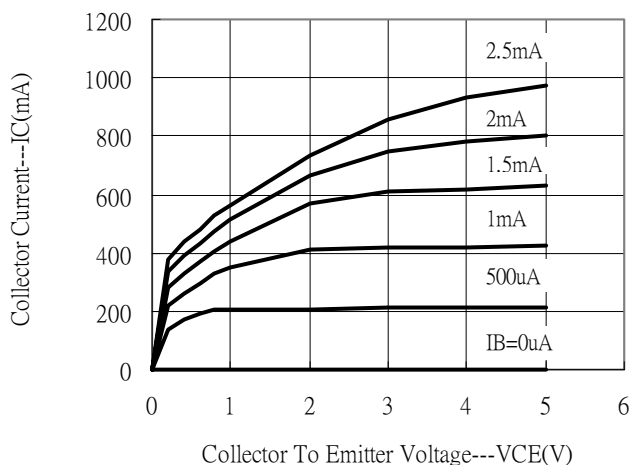
Grounded Emitter Output Characteristics



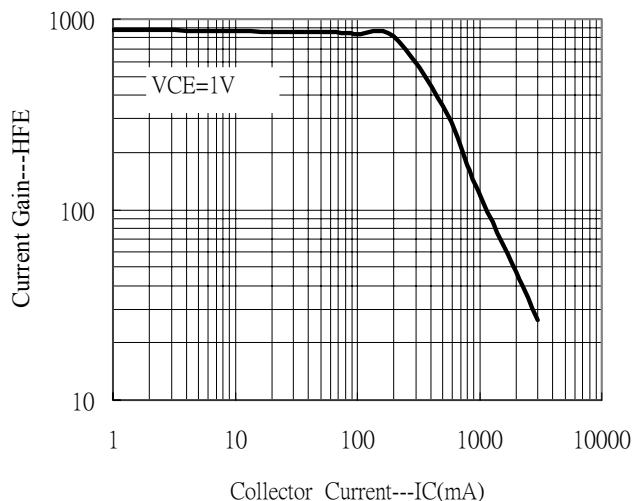
Grounded Emitter Output Characteristics



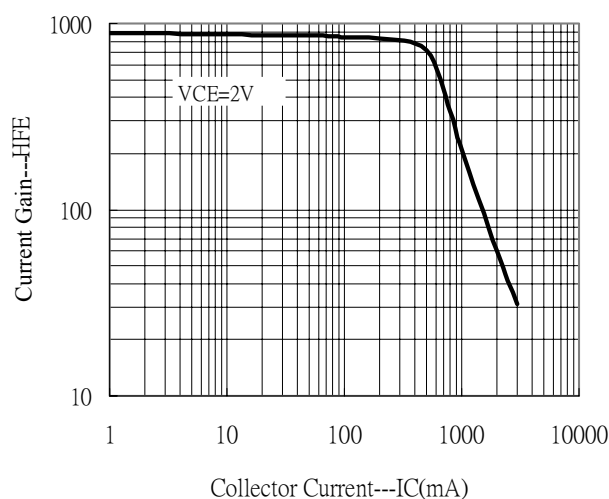
Grounded Emitter Output Characteristics



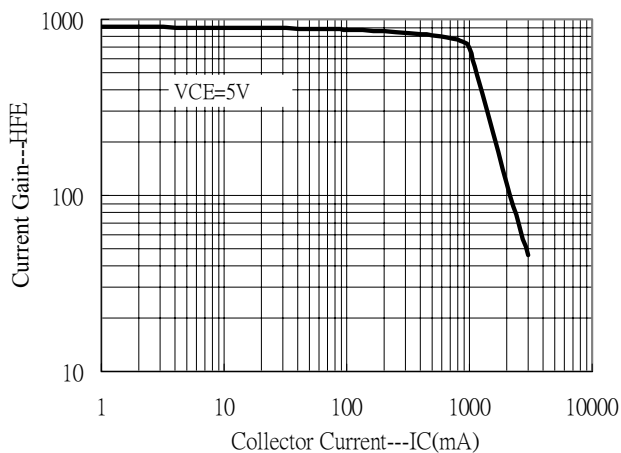
Current Gain vs Collector Current



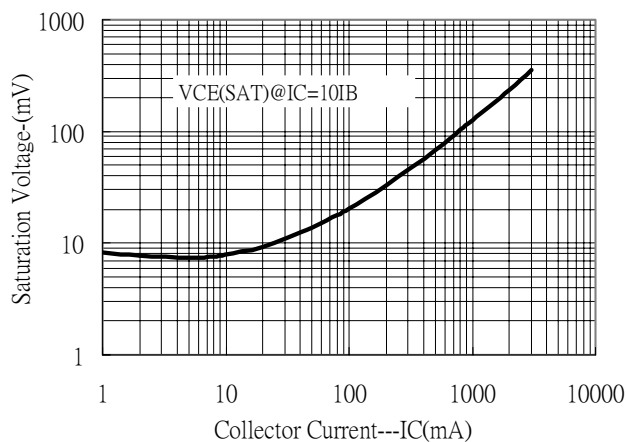
Current Gain vs Collector Current



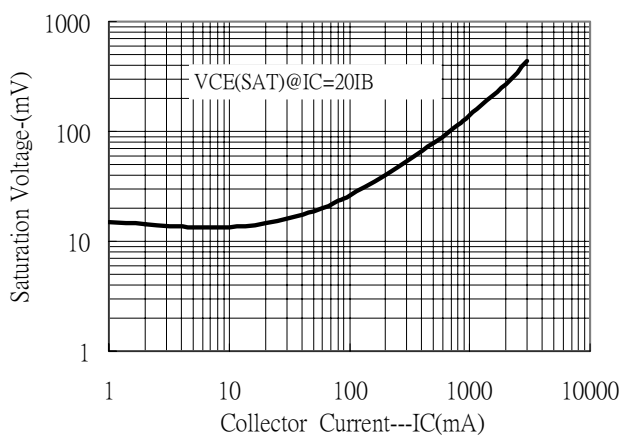
Current Gain vs Collector Current



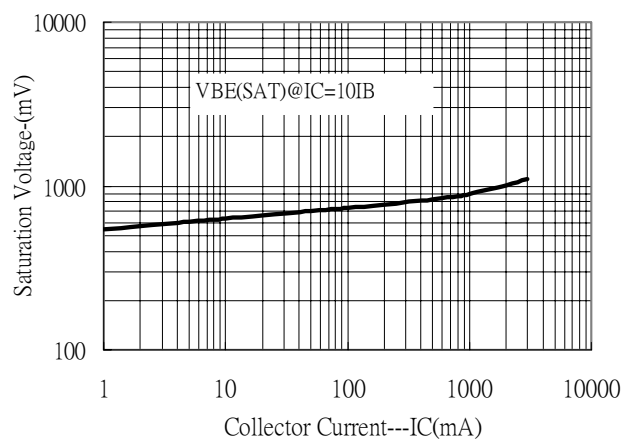
Saturation Voltage vs Collector Current



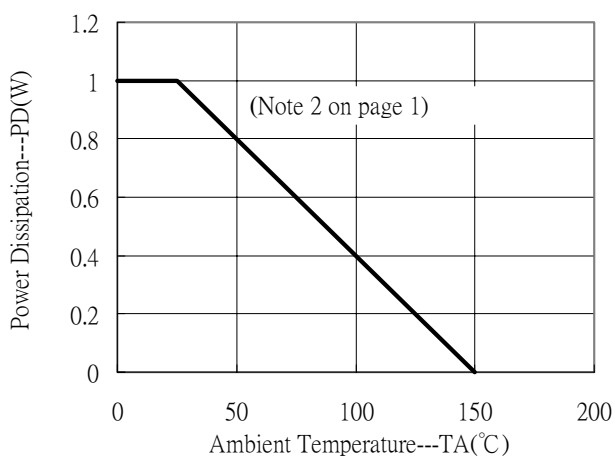
Saturation Voltage vs Collector Current



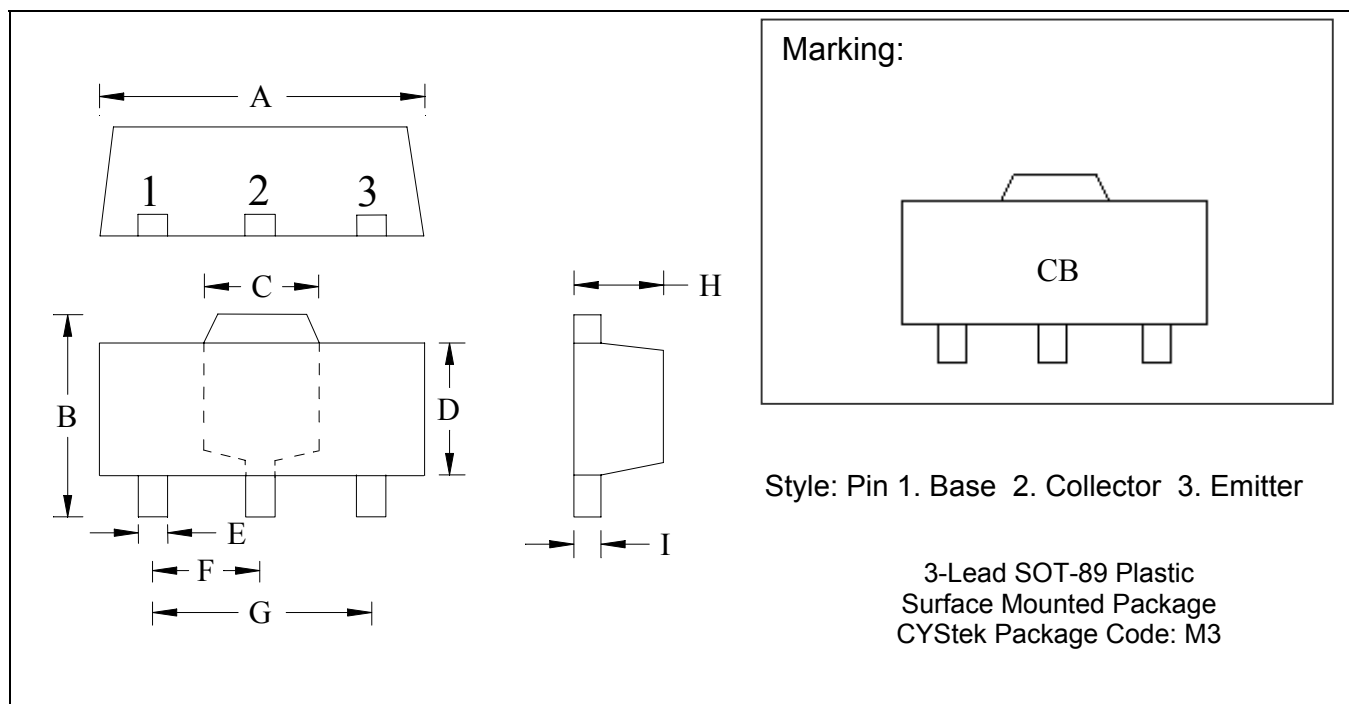
Saturation Voltage vs Collector Current



Power Derating Curve



SOT-89 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.527
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.01417	0.0201	0.36	0.51					

Notes: 1. Controlling dimension: millimeters.

2. Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

3. If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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