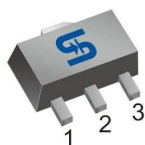


SOT-89

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	-50V
BV_{CEO}	-40V
I_C	-5.5A
$V_{CE(SAT)}$	-175mV @ $I_C / I_B = -3.5A / -175mA$

Features

- Adoption of FBET and MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package facilitates miniaturization in end products.
- High allowable power dissipation.

Ordering Information

Part No.	Package	Packing
TSA5888CY RMG	SOT-89	1Kpcs / 7" Reel

Note: "G" denote for Halogen Free Product

Absolute Maximum Rating ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-7.5	V
Collector Current	DC	-5.5	A
	Pulse	-15	
Collector Power Dissipation	P_C	0.9	W
Operating Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ\text{C}$

Note: For a device surface mounted on 15mm x 15mm x 16mm FR4 PCB

Electrical Specifications ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = -100\mu\text{A}, I_E = 0$	BV_{CBO}	-50	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}, I_B = 0$	BV_{CEO}	-40	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -100\mu\text{A}, I_C = 0$	BV_{EBO}	-7.5	--	--	V
Collector Cutoff Current	$V_{CB} = -40\text{V}, I_E = 0$	I_{CBO}	--	--	-20	μA
Emitter Cutoff Current	$V_{EB} = -6\text{V}, I_C = 0$	I_{EBO}	--	--	-20	μA
Collector-Emitter Saturation Voltage	$I_C / I_B = -2A / -40\text{mA}$	$V_{CE(SAT) 1}$	--	-175	-400	mV
	$I_C / I_B = -3.5A / -175\text{mA}$	$V_{CE(SAT) 2}$	--	-175	-390	
Base-Emitter Saturation Voltage	$I_C / I_B = -2A / -40\text{mA}$	$V_{BE(SAT)}$	--	-0.9	-1.2	mV
DC Current Transfer Ratio	$V_{CE} = -2\text{V}, I_C = -10\text{mA}$	$h_{FE 1}$	200	--	560	
Transition Frequency	$V_{CE} = -10\text{V}, I_E = 50\text{mA}$,	f_T	--	152	--	MHz
Output Capacitance	$V_{CB} = -10\text{V}, f = 1\text{MHz}$	C_{ob}	--	53	--	pF
Turn-ON Time	$V_{CC} = -10\text{V}, I_C = -1\text{A}$	T_{on}	--	35	--	ns
Turn-OFF Time	$-I_{B1} = I_{B2} = -100\text{mA}$	T_{off}	--	385	--	ns

Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Figure 1. DC Current Gain

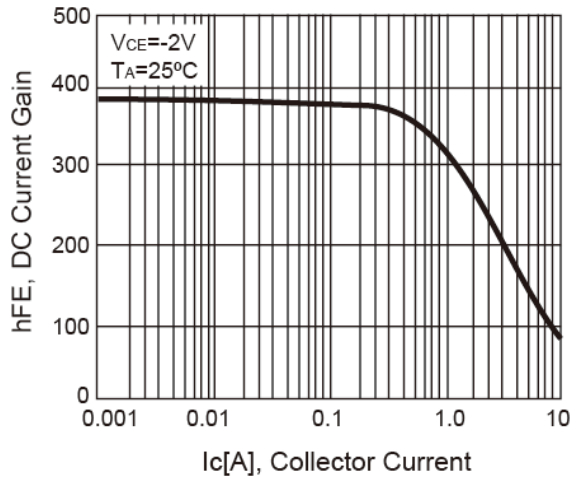


Figure 2. VCE(SAT) v.s. Collector Current

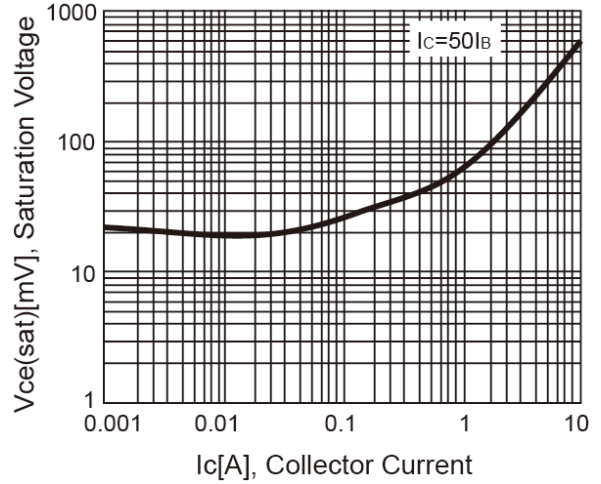


Figure 3. VBE(SAT) v.s. Collector Current

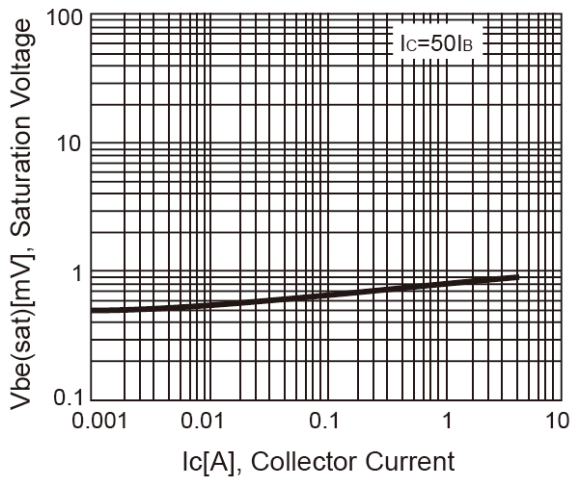


Figure 4. Transition Frequency vs. Emitter Current

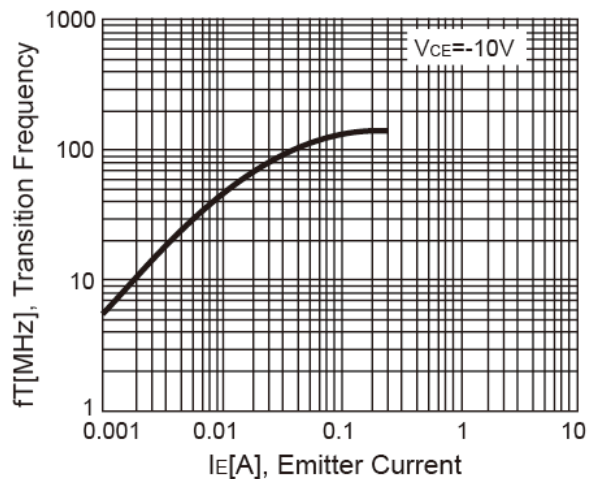


Figure 5. Cob vs. Collector-Base Voltage

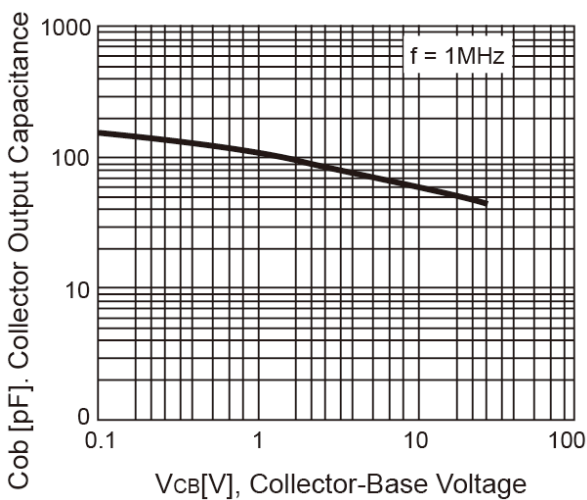
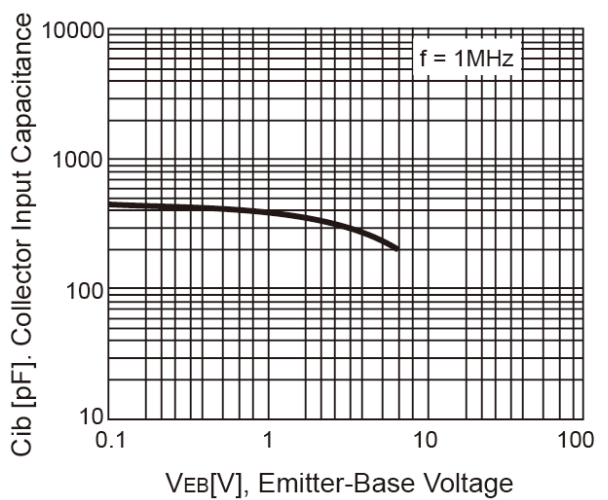


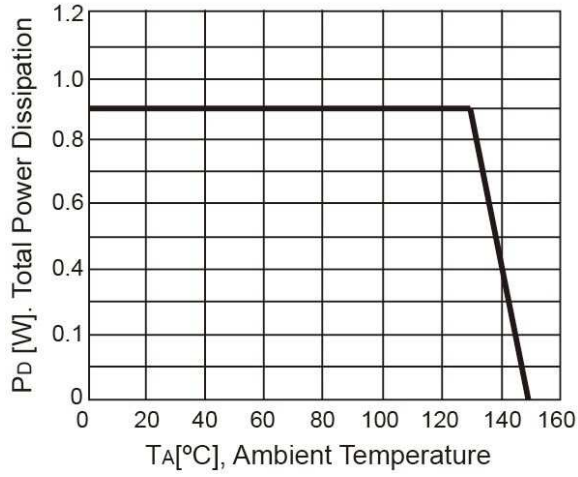
Figure 6. Cib vs. Emitter-Base Voltage



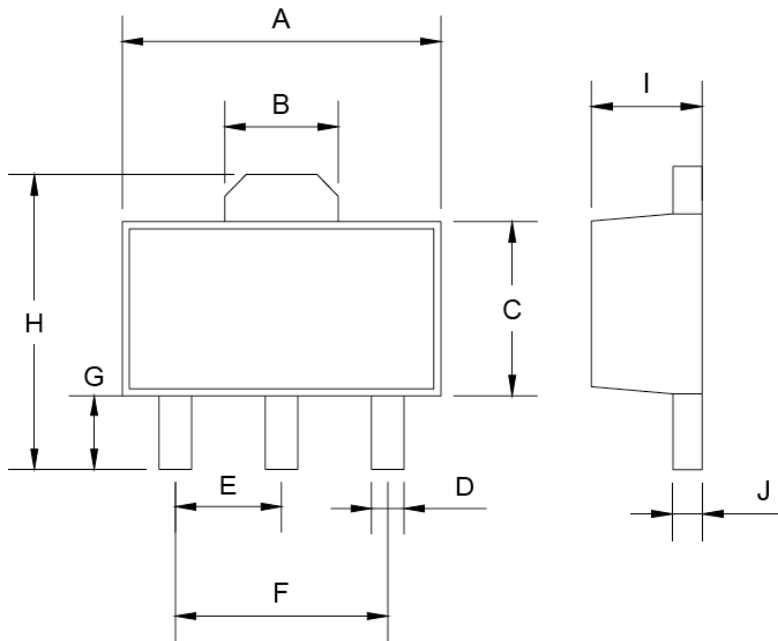


Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

Figure 7. Power Dissipation vs. Ambient Temperature

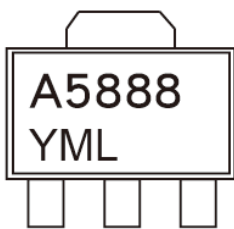


SOT-89 Mechanical Drawing



SOT-89 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.40	4.60	0.173	0.181
B	1.50	1.7	0.059	0.070
C	2.30	2.60	0.090	0.102
D	0.40	0.52	0.016	0.020
E	1.50	1.50	0.059	0.059
F	3.00	3.00	0.118	0.118
G	0.89	1.20	0.035	0.047
H	4.05	4.25	0.159	0.167
I	1.4	1.6	0.055	0.068
J	0.35	0.44	0.014	0.017

Marking Diagram



- Y** = Year Code
- M** = Month Code for Halogen Free Product
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
- L** = Lot Code

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