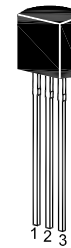


# 2N5088 / 2N5089

## NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into one group according to its DC current gain. As complementary type the PNP transistor 2N5086 and 2N5087 are recommended.



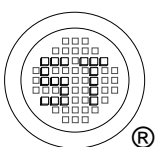
1. Emitter 2. Base 3. Collector  
TO-92 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	35	V
Collector Emitter Voltage	$V_{CEO}$	30	V
Emitter Base Voltage	$V_{EBO}$	4.5	V
Collector Current	$I_C$	50	mA
Power Dissipation	$P_{tot}$	500	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

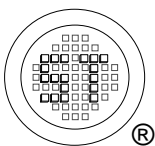
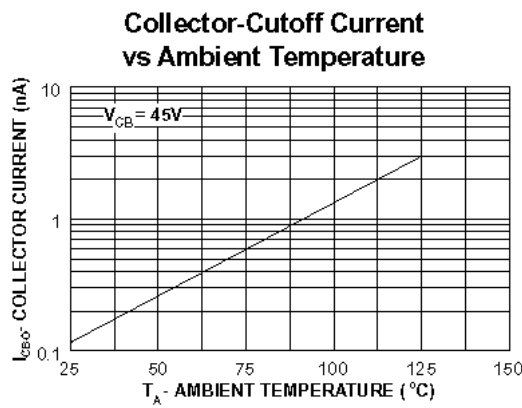
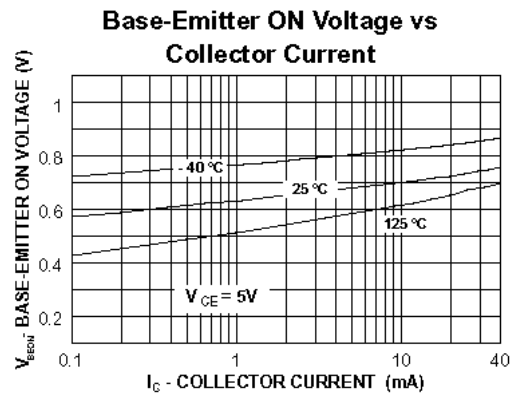
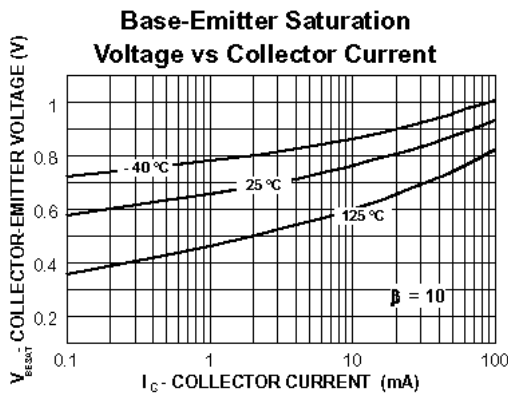
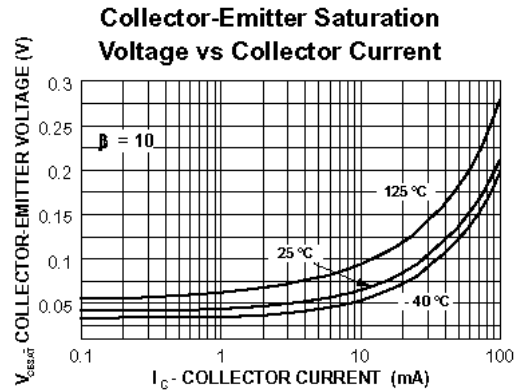
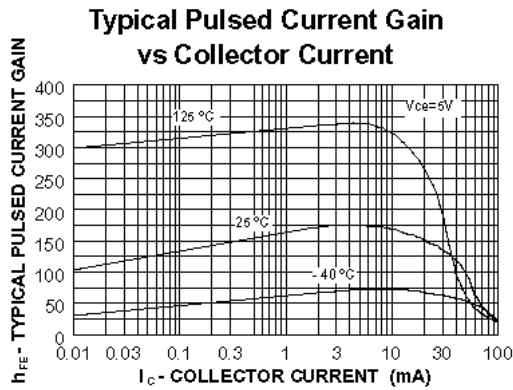
### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 0.1\text{ mA}$ at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ mA}$ at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$	2N5088	$h_{FE}$	300	900	-
	2N5089	$h_{FE}$	400	1200	-
	2N5088	$h_{FE}$	300	-	-
	2N5089	$h_{FE}$	400	-	-
	2N5088	$h_{FE}$	300	-	-
	2N5089	$h_{FE}$	400	-	-
Collector Base Cutoff Current at $V_{CB} = 35\text{ V}$	$I_{CBO}$	-	50	nA	
Emitter Base Cutoff Current at $V_{EB} = 4.5\text{ V}$	$I_{EBO}$	-	50	nA	
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	35	-	V	
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	30	-	V	
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	4.5	-	V	
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$	$V_{CE(sat)}$	-	0.5	V	
Base Emitter Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$	$V_{BE(on)}$	-	0.8	V	
Gain Bandwidth Product at $V_{CE} = 5\text{ V}$ , $I_C = 0.5\text{ mA}$	$f_T$	50	-	MHz	
Collector Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	4	pF	



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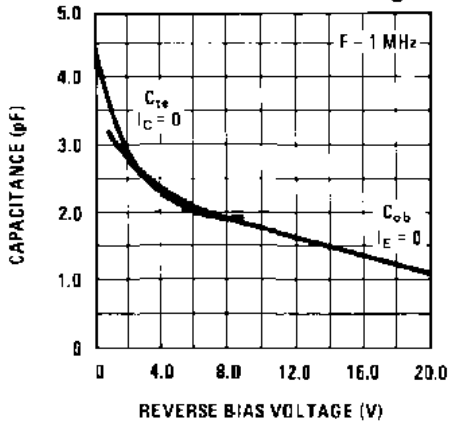




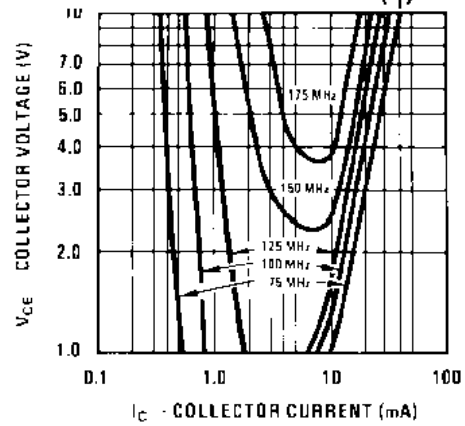
**SEMTECH ELECTRONICS LTD.**



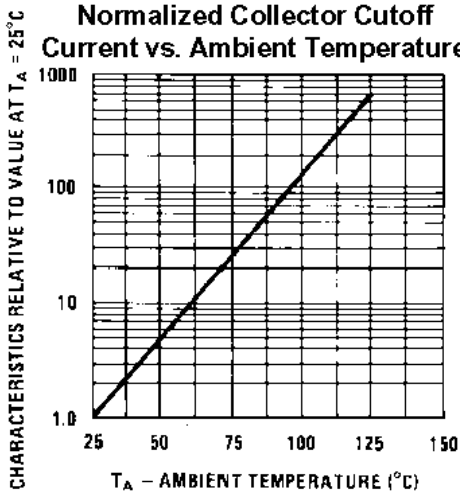
Input / Output Capacitance vs. Reverse Bias Voltage



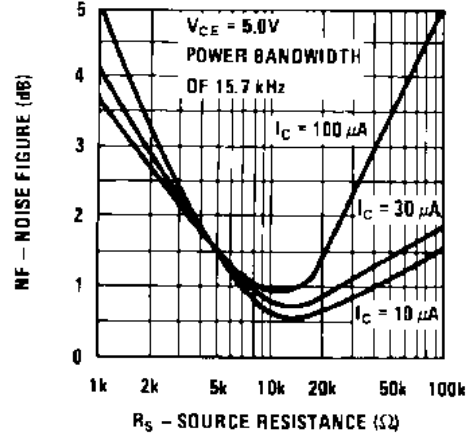
Contours of Constant Gain Bandwidth Product ( $f_T$ )



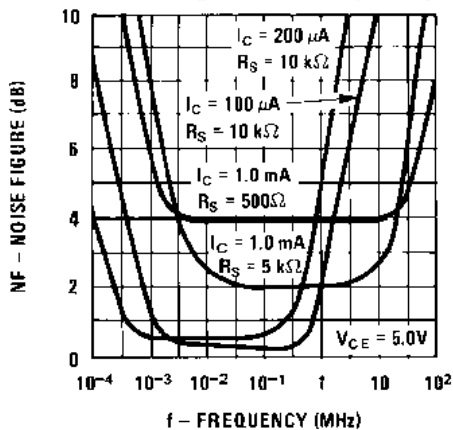
Normalized Collector Cutoff Current vs. Ambient Temperature



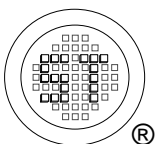
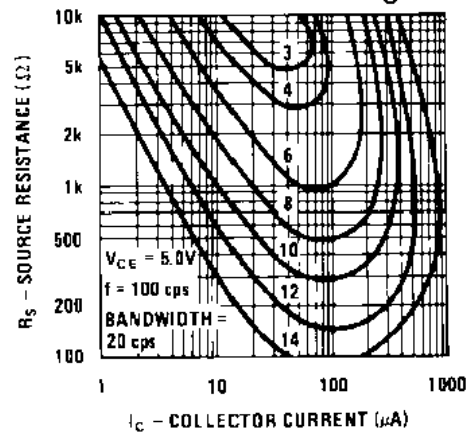
Wideband Noise Figure vs. Source Resistance



Noise Figure vs. Frequency



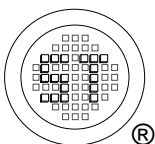
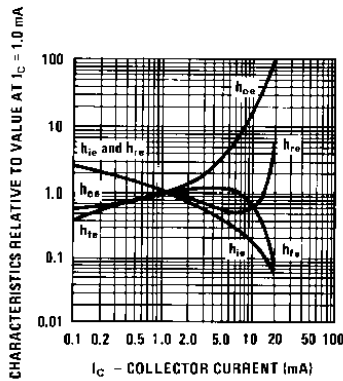
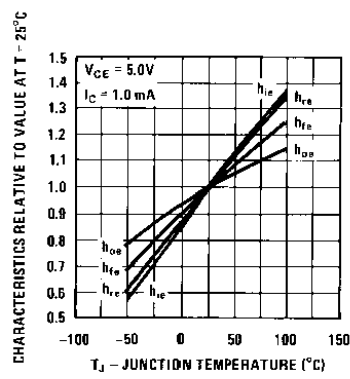
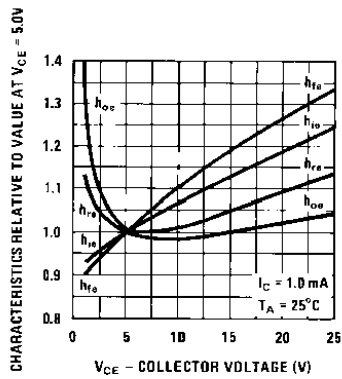
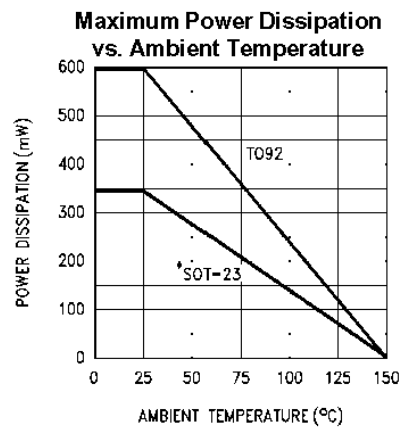
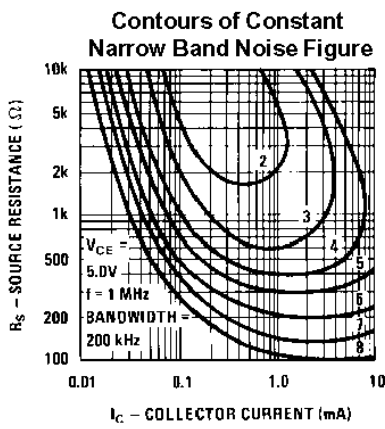
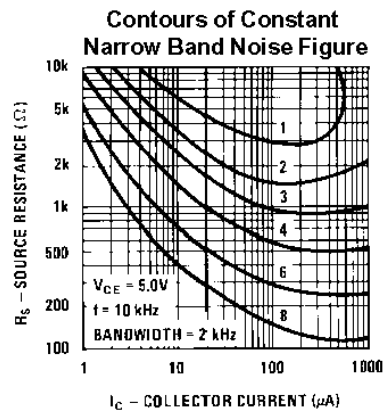
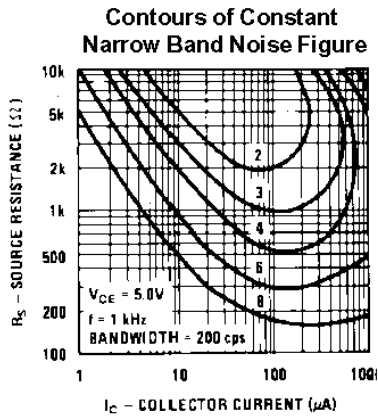
Contours of Constant Narrow Band Noise Figure



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ISO/TS 16949 : 2009 Certificate No. 16073300 ISO14001 : 2004 Certificate No. 7116 ISO 9001 : 2008 Certificate No. 50716410 BS-ONSAS 18001 : 2007 Certificate No. 7116 IECQ QC 080000 Certificate No. PRC1694-1481



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