



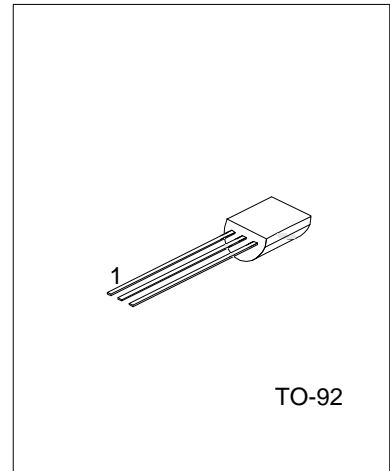
2N5088/2N5089

NPN EPITAXIAL SILICON TRANSISTOR

NPN GENERAL PURPOSE AMPLIFIER

DESCRIPTION

The devices are designed for low noise, high gain, general purpose amplifier applications at collector currents from 1 μ A ~ 50mA.



ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2N5088L-T92-B	2N5088G-T92-B	TO-92	E	B	C	Tape Box
2N5088L-T92-K	2N5088G-T92-K	TO-92	E	B	C	Bulk
2N5088L-T92-R	2N5088G-T92-R	TO-92	E	B	C	Tape Reel
2N5089L-T92-B	2N5089G-T92-B	TO-92	E	B	C	Tape Box
2N5089L-T92-K	2N5089G-T92-K	TO-92	E	B	C	Bulk
2N5089L-T92-R	2N5089G-T92-R	TO-92	E	B	C	Tape Reel

Note: Pin Assignment: E: Emitter B: Base C: Collector

<p>2N5088L-T92-B</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) T92: TO-92</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter voltage	V _{CEO}	30	V
		25	
Collector-Base voltage	V _{CBO}	35	V
		30	
Emitter-Base Voltage	V _{EBO}	4.5	V
Collector Current-Continuous	I _C	100	mA
Power Dissipation	P _D	625	mW
Derate Above 25°C		5	mW/°C
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Note 1. These ratings are based on a maximum junction temperature of 150 degrees C.

2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA (T_A=25°C, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	200	°C/W
Junction to Case	θ _{JC}	83.3	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1.0mA, I _B =0 (Note)	30			V
			25			
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C =100μA, I _E =0	35			V
			30			
Collector Cut-Off Current	I _{CBO}	V _{CB} =20V, I _E =0			50	nA
		V _{CB} =15V, I _E =0			50	
Emitter Cutoff Current	I _{EBO}	V _{EB} =3.0V, I _C =0			50	nA
		V _{EB} =4.5V, I _C =0			100	
DC Current Gain	h _{FE}	V _{CE} =5.0V, I _C =100μA	2N5088	300	900	
			2N5089	400	1200	
		V _{CE} =5.0V, I _C =1.0mA	2N5088	350		
			2N5089	450		
		V _{CE} =5.0V, I _C =10mA (Note)	2N5088	300		
			2N5089	400		
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C =10mA, I _B =1.0mA			0.5	V
Base-Emitter On Voltage	V _{BE(ON)}	I _C =10mA, V _{CE} =5.0V			0.8	V
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f _T	V _{CE} =5.0mA, I _C =500μA, f=20MHz	50			MHz
Collector-Base Capacitance	C _{CB}	V _{CB} =5.0V, I _E =0, f=100kHz			4	pF
Emitter-Base Capacitance	C _{EB}	V _{EB} =0.5V, I _C =0, f=100kHz			10	pF
Small-Signal Current Gain	h _{FE}	V _{CE} =5.0V, I _C =1.0mA, f=1.0kHz	2N5088	350	1400	
			2N5089	450	1800	
Noise Figure	NF	V _{CE} =5.0V, I _C =100μA, R _S =10kΩ, f=10KHz ~ 15.7kHz			3.0	dB
					2.0	

Note Pulse Test: Pulse Width≤300μs, Duty Cycle≤2.0%



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