



THE DATASHEET OF SMF28AT1



2N5320 2N5321 NPN
2N5322 2N5323 PNP

**COMPLEMENTARY SILICON
SWITCHING TRANSISTORS**



TO-39 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N5320, 2N5322 series devices are complementary silicon power transistors manufactured by the epitaxial planar process, designed for amplifier and switching applications.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_C=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Continuous Base Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL	2N5320	2N5321	UNITS
	2N5322	2N5323	
V_{CBO}	100	75	V
V_{CEV}	100	75	V
V_{CEO}	75	50	V
V_{EBO}	6.0	5.0	V
I_C		2.0	A
I_B		1.0	A
P_D		10	W
T_J, T_{stg}		-65 to +200	$^\circ\text{C}$
θ_{JA}		175	$^\circ\text{C/W}$
θ_{JC}		17.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N5320		2N5321		UNITS
		2N5322		2N5323		
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=80\text{V}$	-	0.5	-	-	μA
I_{CBO}	$V_{CB}=60\text{V}$	-	-	-	5.0	μA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	0.1	-	-	μA
I_{EBO}	$V_{EB}=4.0\text{V}$	-	-	-	0.5	μA
BV_{CEV}	$I_C=100\mu\text{A}, V_{BE}=1.5\text{V}$	100	-	75	-	V
BV_{CEO}	$I_C=10\text{mA}$	75	-	50	-	V
BV_{EBO}	$I_E=100\mu\text{A}$	6.0	-	5.0	-	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$ (2N5320)	-	0.5	-	-	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$ (2N5321)	-	-	-	0.8	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$ (2N5322)	-	0.7	-	-	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$ (2N5323)	-	-	-	1.2	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=500\text{mA}$	-	1.1	-	1.4	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=500\text{mA}$	30	200	40	250	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$	10	-	-	-	
f_T	$V_{CE}=4.0\text{V}, I_C=50\text{mA}, f=10\text{MHz}$	50	-	50	-	MHz

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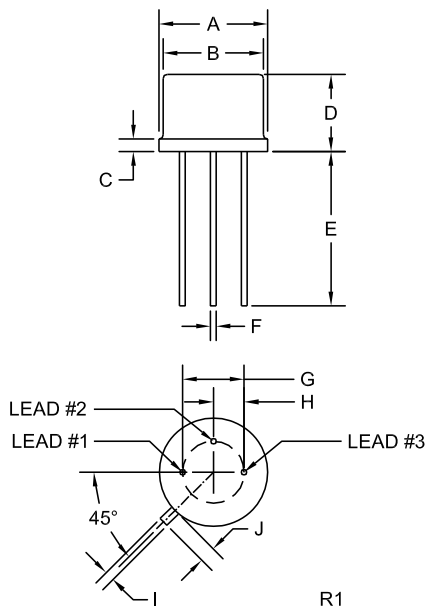
**COMPLEMENTARY SILICON
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ELECTRICAL CHARACTERISTICS - Continued: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MAX	UNITS
t_{on}	$V_{CC}=30\text{V}$, $I_C=500\text{mA}$, $I_{B1}=50\text{mA}$ (2N5320, 2N5321)	80	ns
t_{on}	$V_{CC}=30\text{V}$, $I_C=500\text{mA}$, $I_{B1}=50\text{mA}$ (2N5322, 2N5323)	100	ns
t_{off}	$V_{CC}=30\text{V}$, $I_C=500\text{mA}$, $I_{B1}=I_{B2}=50\text{mA}$ (2N5320, 2N5321)	800	ns
t_{off}	$V_{CC}=30\text{V}$, $I_C=500\text{mA}$, $I_{B1}=I_{B2}=50\text{mA}$ (2N5322, 2N5323)	1.0	μs

TO-39 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING: FULL PART NUMBER

R6(28-October 2021)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

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- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

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- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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