

2N3053
2N3053A

SILICON
NPN TRANSISTORS



TO-39 CASE



www.centra-semi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3053, 2N3053A types are epitaxial planar NPN silicon transistors designed for general purpose applications.

MARKING: FULL PART NUMBER

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

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation ($T_C=25^\circ\text{C}$)
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL	2N3053	2N3053A	UNITS
V_{CBO}	60	80	V
V_{CEO}	40	60	V
V_{EBO}		5.0	V
I_C		0.7	A
P_D		5.0	W
T_J, T_{stg}	-65 to +200		$^\circ\text{C}$
θ_{JC}		35	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N3053		2N3053A		UNITS
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=1.5\text{V}$	-	250	-	-	nA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB}=1.5\text{V}$	-	-	-	250	nA
I_{EBO}	$V_{EB}=4.0\text{V}$	-	250	-	250	nA
BV_{CBO}	$I_C=100\mu\text{A}$	60	-	80	-	V
BV_{CER}	$I_C=100\text{mA}, R_{BE}=10\Omega$ (Note 1)	50	-	70	-	V
BV_{CEO}	$I_C=100\text{mA}$ (Note 1)	40	-	60	-	V
BV_{EBO}	$I_E=100\mu\text{A}$	5.0	-	5.0	-	V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	1.4	-	0.3	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	1.7	0.6	1.0	V
$V_{BE(ON)}$	$V_{CE}=2.5\text{V}, I_C=150\text{mA}$	-	1.7	-	1.0	V
h_{FE}	$V_{CE}=2.5\text{V}, I_C=150\text{mA}$	25	-	25	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	50	250	50	250	
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	100	-	100	-	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	-	15	-	15	pF
C_{ib}	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$	-	80	-	80	pF

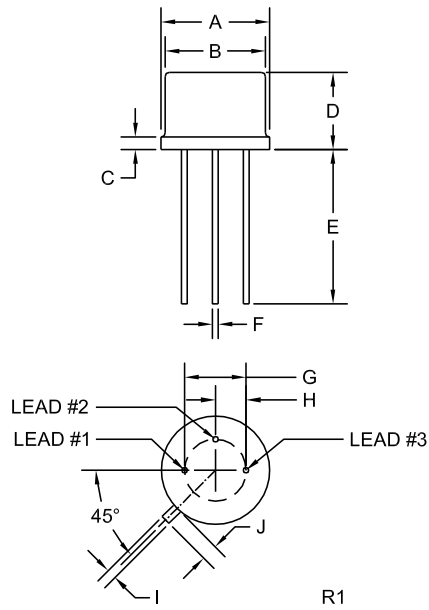
Notes: (1) Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

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TO-39 CASE - MECHANICAL OUTLINE



SYMBOL	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

R2 (13-December 2013)

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PRODUCT SUPPORT

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

- Supply management (Customer portals)
- 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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- SPICE models
- Custom electrical curves
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- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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