

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

www.centalsemi.com

2N3506
2N3507

NPN SILICON TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3506, 2N3507 types are Silicon NPN Epitaxial Planar Transistors designed for general purpose switching applications.

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

	SYMBOL	2N3506	2N3507	UNITS
Collector-Base Voltage	V _{CBO}	60	80	V
Collector-Emitter Voltage	V _{CEO}	40	50	V
Emitter-Base Voltage	V _{EBO}	5.0		V
Collector Current	I _C	3.0		A
Power Dissipation	P _D	1.0		W
Power Dissipation (T _C =25°C)	P _D	5.0		W
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +200		°C
Thermal Resistance	θ _{JA}	175		°C/W
Thermal Resistance	θ _{JC}	35		°C/W

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

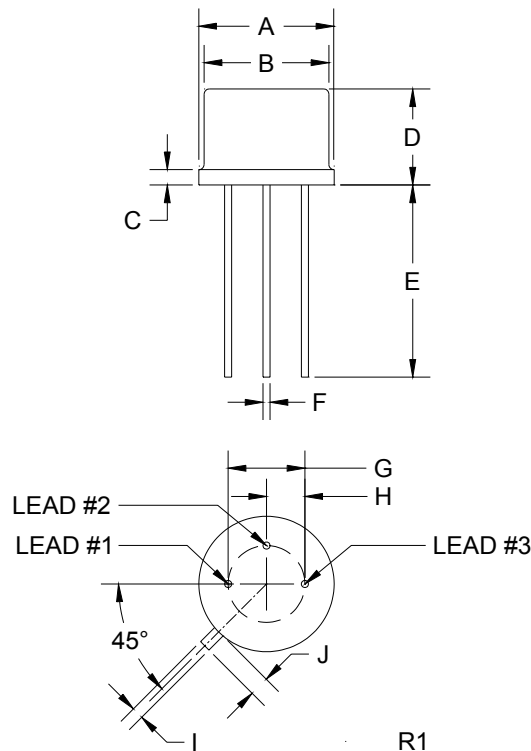
SYMBOL	TEST CONDITIONS	2N3506		2N3507		UNITS
		MIN	MAX	MIN	MAX	
I _{CEV}	V _{CE} =40V, V _{EB(off)} =4.0V		1.0			μA
I _{CEV}	V _{CE} =40V, V _{EB(off)} =4.0V, T _A =100°C		150			μA
I _{CEV}	V _{CE} =60V, V _{EB(off)} =4.0V				1.0	μA
I _{CEV}	V _{CE} =60V, V _{EB(off)} =4.0V, T _A =100°C				150	μA
BV _{CBO}	I _C =100μA	60		80		V
BV _{CEO}	I _C =10mA	40		50		V
BV _{EBO}	I _E =10μA	5.0		5.0		V
V _{CE(SAT)}	I _C =500mA, I _B =50mA		0.5		0.5	V
V _{CE(SAT)}	I _C =1.5A, I _B =150mA		1.0		1.0	V
V _{CE(SAT)}	I _C =2.5A, I _B =250mA		1.5		1.5	V
V _{BE(SAT)}	I _C =500mA, I _B =50mA		1.0		1.0	V
V _{BE(SAT)}	I _C =1.5A, I _B =150mA	0.9	1.4	0.9	1.4	V
V _{BE(SAT)}	I _C =2.5A, I _B =250mA		2.0		2.0	V

(Continued)

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

SYMBOL	TEST CONDITIONS	2N3506		2N3507		UNITS
		MIN	MAX	MIN	MAX	
h_{FE}	$V_{CE}=1.0\text{V}$, $I_C=500\text{mA}$	50		35		
h_{FE}	$V_{CE}=2.0\text{V}$, $I_C=1.5\text{A}$	40	200	30	150	
h_{FE}	$V_{CE}=3.0\text{V}$, $I_C=2.5\text{A}$	30		25		
h_{FE}	$V_{CE}=5.0\text{V}$, $I_C=3.0\text{A}$	25		20		
f_T	$V_{CE}=5.0\text{V}$, $I_C=100\text{mA}$, $f=20\text{MHz}$	60		60		MHz
C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=100\text{kHz}$		40		40	pF
C_{ib}	$V_{BE}=3.0\text{V}$, $I_C=0$, $f=100\text{kHz}$		300		300	pF
t_d	$V_{CC}=30\text{V}$, $I_C=1.5\text{A}$, $I_{B1}=150\text{mA}$		15		15	ns
t_r	$V_{CC}=30\text{V}$, $I_C=1.5\text{A}$, $I_{B1}=150\text{mA}$		30		30	ns
t_s	$V_{CC}=30\text{V}$, $I_C=1.5\text{A}$, $I_{B1}=I_{B2}=150\text{mA}$		55		55	ns
t_f	$V_{CC}=30\text{V}$, $I_C=1.5\text{A}$, $I_{B1}=I_{B2}=150\text{mA}$		35		35	ns

TO-39 PACKAGE - 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

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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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- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

CONTACT US

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