2N4014

SILICON
NPN TRANSISTOR

TO-18 CASE

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4014 is a silicon NPN transistor designed for general purpose switching applications.

MARKING: FULL PART NUMBER

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

	SYMBOL		UNITS
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Continuous Collector Current	I_C	1.0	A
Peak Collector Current	I_{CM}	2.0	A
Power Dissipation	P_D	0.5	W
Power Dissipation (T_C=25°C)	P_D	1.4	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200	°C
Thermal Resistance	Θ_{JA}	350	°C/W
Thermal Resistance	Θ_{JC}	125	°C/W

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	V_{CB}=60V		1.7	μA
I_{CBO}	V_{CB}=60V, T_A=100°C		120	μA
I_{CES}	V_{CE}=80V		10	μA
BV_{CBO}	I_C=10μA	80		V
BV_{CES}	I_C=10μA	80		V
BV_{CEO}	I_C=10mA	40		V
BV_{EBO}	I_E=10μA	6.0		V
$V_{CE(SAT)}$	I_C=10mA, I_B=1.0mA		0.25	V
$V_{CE(SAT)}$	I_C=100mA, I_B=10mA		0.26	V
$V_{CE(SAT)}$	I_C=300mA, I_B=30mA		0.40	V
$V_{CE(SAT)}$	I_C=500mA, I_B=50mA		0.52	V
$V_{CE(SAT)}$	I_C=800mA, I_B=80mA		0.80	V
$V_{CE(SAT)}$	I_C=1.0A, I_B=100mA		0.95	V
$V_{BE(SAT)}$	I_C=10mA, I_B=1.0mA		0.76	V
$V_{BE(SAT)}$	I_C=100mA, I_B=10mA		0.86	V
$V_{BE(SAT)}$	I_C=300mA, I_B=30mA		1.1	V
$V_{BE(SAT)}$	I_C=500mA, I_B=50mA	0.80	1.1	V
$V_{BE(SAT)}$	I_C=800mA, I_B=80mA		1.5	V
$V_{BE(SAT)}$	I_C=1.0A, I_B=100mA		1.7	V

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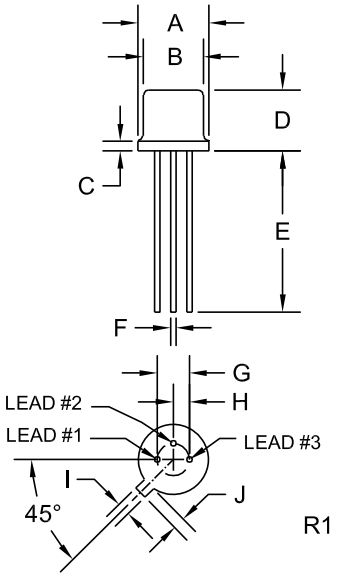
ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE}	V_{CE}=1.0V, I_C=10mA	30		
h_{FE}	V_{CE}=1.0V, I_C=100mA	60	150	
h_{FE}	V_{CE}=1.0V, I_C=100mA, T_A=-55°C	30		
h_{FE}	V_{CE}=1.0V, I_C=300mA	40		
h_{FE}	V_{CE}=1.0V, I_C=500mA	35		
h_{FE}	V_{CE}=1.0V, I_C=500mA, T_A=-55°C	20		
h_{FE}	V_{CE}=2.0V, I_C=800mA	20		
h_{FE}	V_{CE}=5.0V, I_C=1.0A	25		
f_T	V_{CE}=10V, I_C=50mA, f=100MHz	300		MHz
C_{ob}	V_{CB}=10V, I_E=0, f=1.0MHz		10	pF
C_{ib}	V_{EB}=0.5V, I_C=0, f=1.0MHz		55	pF
t_d	V_{CC}=30V, I_C=500mA, I_{B1}=50mA		10	ns
t_r	V_{CC}=30V, I_C=500mA, I_{B1}=50mA		30	ns
t_{on}	V_{CC}=30V, I_C=500mA, I_{B1}=50mA		35	ns
t_s	V_{CC}=30V, I_C=500mA, I_{B1}=I_{B2}=50mA		50	ns
t_f	V_{CC}=30V, I_C=500mA, I_{B1}=I_{B2}=50mA		25	ns
t_{off}	V_{CC}=30V, I_C=500mA, I_{B1}=I_{B2}=50mA		60	ns

TO-18 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A (DIA)	0.209	0.230	5.31	5.84
B (DIA)	0.178	0.195	4.52	4.95
C	-	0.030	-	0.76
D	0.170	0.210	4.32	5.33
E	0.500	-	12.70	-
F (DIA)	0.016	0.019	0.41	0.48
G (DIA)	0.100		2.54	
H	0.050		1.27	
I	0.036	0.046	0.91	1.17
J	0.028	0.048	0.71	1.22

TO-18 (REV: R1)

LEAD CODE:
1) Emitter
2) Base
3) Collector

MARKING: FULL PART NUMBER

R0 (3-October 2016)

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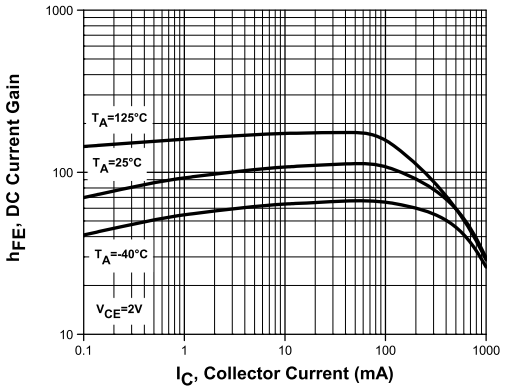
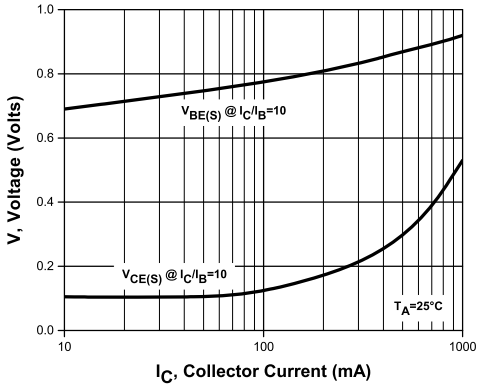
TYPICAL ELECTRICAL CHARACTERISTICS

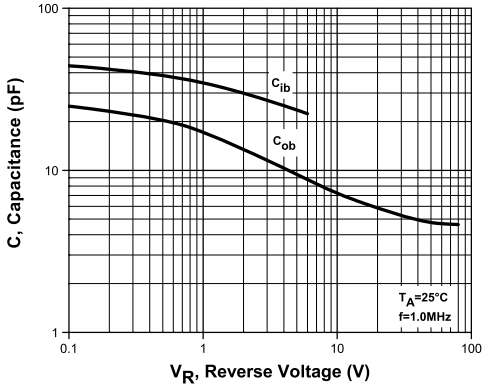
DC Current Gain



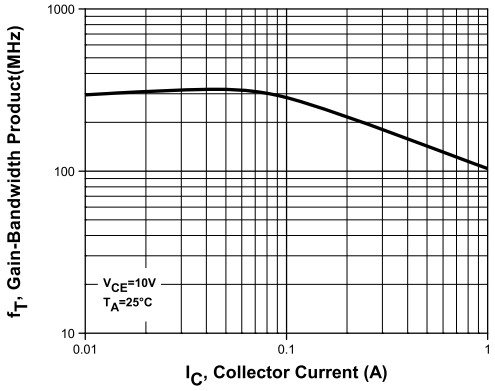
"ON" Voltage



Capacitance



Current Gain-Bandwidth Product



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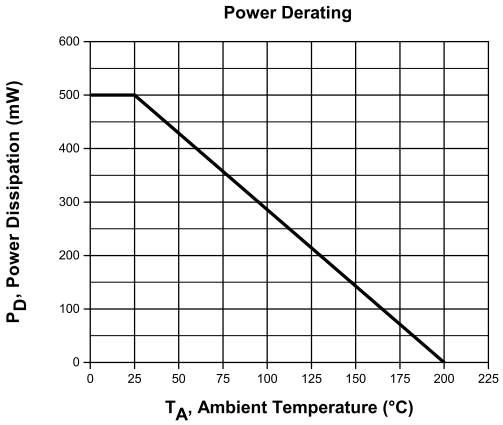
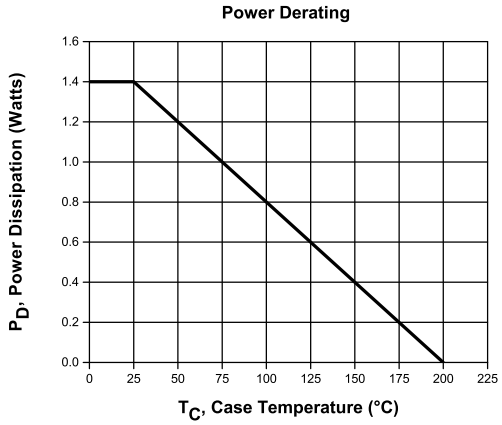
TYPICAL ELECTRICAL CHARACTERISTICS





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

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