

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N5148 2N5150

NPN SILICON
POWER TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5148, 2N5150 types are NPN silicon transistors, manufactured by the epitaxial planar process mounted in a hermetically sealed metal case, designed for high current switching applications.

MAXIMUM RATINGS ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	2N5148 2N5150	UNIT
Collector-Base Voltage	V_{CB0}	100	V
Collector-Emitter Voltage	V_{CE0}	80	V
Emitter-Base Voltage	V_{EB0}	6.0	V
Collector Current	I_C	2.0	A
Collector Current (PEAK)	I_{CM}	5.0	A
Base Current	I_B	1.0	A
Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	1.0	W
Power Dissipation ($T_C=50^{\circ}\text{C}$)	P_D	6.0	W
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +200	$^{\circ}\text{C}$
Thermal Resistance	θ_{JA}	175	$^{\circ}\text{C/W}$
Thermal Resistance	θ_{JC}	35	$^{\circ}\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N5148		2N5150		UNIT
		MIN	MAX	MIN	MAX	
I_{CES}	$V_{CE}=60\text{V}$		1.0		1.0	μA
I_{CES}	$V_{CE}=100\text{V}$		1.0		1.0	mA
I_{CEO}	$V_{CE}=40\text{V}$		50		50	μA
I_{EBO}	$V_{EB}=5.0\text{V}$		1.0		1.0	μA
I_{EBO}	$V_{EB}=6.0\text{V}$		1.0		1.0	mA
BV_{CEO}	$I_C=100\text{mA}$	80		80		V
$V_{CE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$		0.46		0.46	V
$V_{CE}(\text{SAT})$	$I_C=3.0\text{A}, I_B=600\text{mA}$		5.0		5.0	V
$V_{BE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$		1.2		1.2	V
$V_{BE}(\text{SAT})$	$I_C=2.0\text{A}, I_B=200\text{mA}$		1.5		1.5	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	20		50		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	30	90	70	200	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}, T_C=-55^{\circ}\text{C}$	15		35		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	15		30		
f_T	$V_{CE}=5.0\text{V}, I_C=0.5\text{A}, f=20\text{MHz}$	50		60		MHz
C_{ob}	$V_{CB}=10\text{V}, I_B=0, f=1.0\text{MHz}$		70		70	pF
t_{ON}	$V_{CC}=20\text{V}, I_C=1.0\text{A}, I_{B1}=100\text{mA}$	0.1 TYP		0.1 TYP		μs
t_{OFF}	$V_{CC}=20\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$	0.8 TYP		1.2 TYP		μs