Data Sheet

Central Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

2N5151 2N5153 PNP
2N5152 2N5154 NPN

COMPLEMENTARY SILICON
POWER TRANSISTORS

JEDEC TO-39 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5151 series types are complementary silicon transistors manufactured by the epitaxial planar process mounted in a hermetically sealed metal case, designed for high current switching applications.

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

	SYMBOL	2N5151 2N5153	2N5152 2N5154	UNIT
Collector-Base Voltage	V_{CBO}	100	100	V
Collector-Emitter Voltage	V_{CEO}	80	80	V
Emitter-Base Voltage	V_{EBO}	5.5	6.0	V
Collector Current	I_C	5.0	2.0	A
Collector Current (Peak)	I_{CM}	10	10	A
Base Current	I_B	2.5	1.0	A
Power Dissipation (T_A=25°C)	P_D	1.0	1.0	W
Power Dissipation (T_C=50°C)	P_D	10	10	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}	15		°C/W

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

		2N5151		2N5152		2N5153		2N5154		
SYMBOL	TEST CONDITIONS	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	UNIT
I_{CES}	V_{CE}=60V		1.0		1.0		1.0		1.0	μA
I_{CES}	V_{CE}=100V		1.0		1.0		1.0		1.0	mA
I_{CEV}	V_{CE}=60V, V_{BE}=2.0V, T_C=150°C		500		500		500		500	μA
I_{CEO}	V_{CE}=40V		50		50		50		50	μA
I_{EBO}	V_{EB}=4.0V (PNP types only)		1.0		-		1.0		-	μA
I_{EBO}	V_{EB}=5.5V (PNP types only)		1.0		-		1.0		-	mA
I_{EBO}	V_{EB}=5.0V (NPN types only)		-		1.0		-		1.0	μA
I_{EBO}	V_{EB}=6.0V (NPN types only)		-		1.0		-		1.0	mA
BV_{CEO}	I_C=100mA	80		80		80		80		V
$V_{CE(SAT)}$	I_C=2.5A, I_B=250mA		0.75		0.75		0.75		0.75	V
$V_{CE(SAT)}$	I_C=5.0A, I_B=500mA		1.5		1.5		1.5		1.5	V
$V_{BE(SAT)}$	I_C=2.5A, I_B=250mA		1.45		1.45		1.45		1.45	V
$V_{BE(SAT)}$	I_C=5.0A, I_B=500mA		2.2		2.2		2.2		2.2	V
$V_{BE(ON)}$	V_{CE}=5.0V, I_C=250mA		1.45		1.45		1.45		1.45	V
h_{FE}	V_{CE}=5.0V, I_C=50mA	20		20		50		50		
h_{FE}	V_{CE}=5.0V, I_C=2.5A	30	90	30	90	70	200	70	200	
h_{FE}	V_{CE}=5.0V, I_C=2.5A, T_C=-55°C	15		15		35		35		
h_{FE}	V_{CE}=5.0V, I_C=5.0A	20		20		40		40		
h_{fe}	V_{CE}=5.0V, I_C=0.1A, f=1.0kHz	20		20		50		50		
f_T	V_{CE}=5.0V, I_C=0.5A, f=20MHz	60		60		70		70		MHz
C_{ob}	V_{CB}=10V, I_B=0, f=1.0MHz		250		250		250		250	pF
t_{ON}	V_{CC}=30V, I_C=5.0A, I_{B1}=0.5A	0.5 TYP		0.5 TYP		0.5 TYP		0.5 TYP		μs
t_{OFF}	V_{CC}=30V, I_C=5.0A, I_{B1}=I_{B2}=0.5A	1.3 TYP		1.3 TYP		1.3 TYP		1.3 TYP		μs