

2N5050
2N5051
2N5052

SILICON
NPN POWER TRANSISTORS



TO-66 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N5050, 2N5051, and 2N5052 are silicon NPN transistors designed for general purpose amplifier and switching applications.

MARKING: FULL PART NUMBER

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

Collector-Base Voltage	V_{CBO}	125	150	200	V
Collector-Emitter Voltage	V_{CEO}	125	150	200	V
Emitter-Base Voltage	V_{EBO}		6.0		V
Continuous Collector Current	I_C		2.0		A
Continuous Base Current	I_B		1.0		A
Power Dissipation	P_D		40		W
Operating Junction Temperature	T_J		-65 to +175		$^\circ\text{C}$
Storage Temperature	T_{stg}		-65 to +200		$^\circ\text{C}$
Thermal Resistance	θ_{JC}		3.76		$^\circ\text{C}/\text{W}$

SYMBOL	2N5050	2N5051	2N5052	UNITS
V_{CBO}	125	150	200	V
V_{CEO}	125	150	200	V
V_{EBO}		6.0		V
I_C		2.0		A
I_B		1.0		A
P_D		40		W
T_J		-65 to +175		$^\circ\text{C}$
T_{stg}		-65 to +200		$^\circ\text{C}$
θ_{JC}		3.76		$^\circ\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CEX}	$V_{CE}=\text{Rated } V_{CEO}, V_{BE(\text{off})}=1.5\text{V}$		0.5	mA
I_{CEX}	$V_{CE}=\text{Rated } V_{CEO}, V_{BE(\text{off})}=1.5\text{V}, T_C=150^\circ\text{C}$		5.0	mA
I_{CEO}	$V_{CE}=62.5\text{V}$ (2N5050)		0.1	mA
I_{CEO}	$V_{CE}=75\text{V}$ (2N5051)		0.1	mA
I_{CEO}	$V_{CE}=100\text{V}$ (2N5052)		0.1	mA
I_{EBO}	$V_{EB}=6.0\text{V}$		0.1	mA
BV_{CEO}	$I_C=200\text{mA}$ (2N5050)	125		V
BV_{CEO}	$I_C=200\text{mA}$ (2N5051)	150		V
BV_{CEO}	$I_C=200\text{mA}$ (2N5052)	200		V
$V_{CE(\text{SAT})}$	$I_C=0.75\text{A}, I_B=0.1\text{A}$		1.0	V
$V_{CE(\text{SAT})}$	$I_C=2.0\text{A}, I_B=0.4\text{A}$		5.0	V
$V_{BE(\text{ON})}$	$V_{CE}=5.0\text{V}, I_C=0.75\text{A}$		1.2	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=0.75\text{A}$	25	100	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	25		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	5.0		
h_{fe}	$V_{CE}=10\text{V}, I_C=250\text{mA}, f=1.0\text{kHz}$	25		
f_T	$V_{CE}=10\text{V}, I_C=250\text{mA}, f=5.0\text{MHz}$	10		MHz

R0 (15-January 2019)

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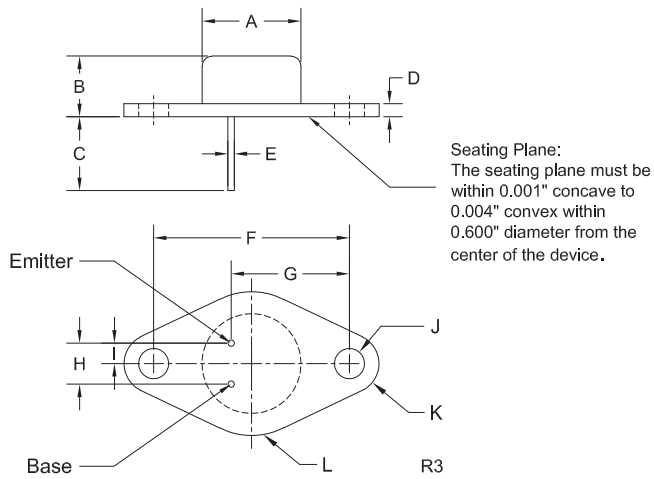
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ELECTRICAL CHARACTERISTICS - Continued: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=100\text{kHz}$		250	pF
t_r	$V_{CC}=120\text{V}$, $I_C=750\text{mA}$, $I_{B1}=I_{B2}=100\text{mA}$, $R_L=150\Omega$		300	ns
t_s			3.5	μs
t_f			1.2	μs

TO-66 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.470	0.500	11.94	12.70
B	0.250	0.340	6.35	8.64
C	0.360	-	9.14	-
D	0.050	0.075	1.27	1.91
E (DIA)	0.028	0.034	0.71	0.86
F	0.956	0.964	24.28	24.48
G	0.570	0.590	14.48	14.99
H	0.190	0.210	4.83	5.33
I	0.093	0.107	2.36	2.72
J (DIA)	0.142	0.152	3.61	3.86
K (RAD)		0.141		3.58
L (RAD)		0.345		8.76

TO-66 (REV:R3)

MARKING:
FULL PART NUMBER

R0 (15-January 2019)