

# Central<sup>™</sup>

## Semiconductor Corp.

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 Manufacturer of World Class Discrete Semiconductors  
 www.centalsemi.com

2N6530  
 2N6531  
 2N6532  
 2N6533

**NPN POWER TRANSISTOR**

**TO-220 CASE**

### DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N6530 Series are NPN silicon Darlington transistors designed for power applications requiring extremely high gain.

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

	SYMBOL	2N6530	2N6531	2N6532	2N6533	UNITS
Collector-Base Voltage	$V_{CBO}$	80	100	100	120	V
Collector-Emitter Voltage	$V_{CER}$	80	100	100	120	V
Collector-Emitter Voltage	$V_{CEV}$	80	100	100	120	V
Collector-Emitter Voltage	$V_{CEO}$	80	100	100	120	V
Emitter-Base Voltage	$V_{EBO}$			5.0		V
Continuous Collector Current	$I_C$			8.0		A
Peak Collector Current	$I_{CM}$			15		A
Power Dissipation	$P_D$			65		W
Operating and Storage Junction Temperature	$T_J, T_{stg}$			-65 to +150		$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$			1.92		$^\circ\text{C/W}$

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

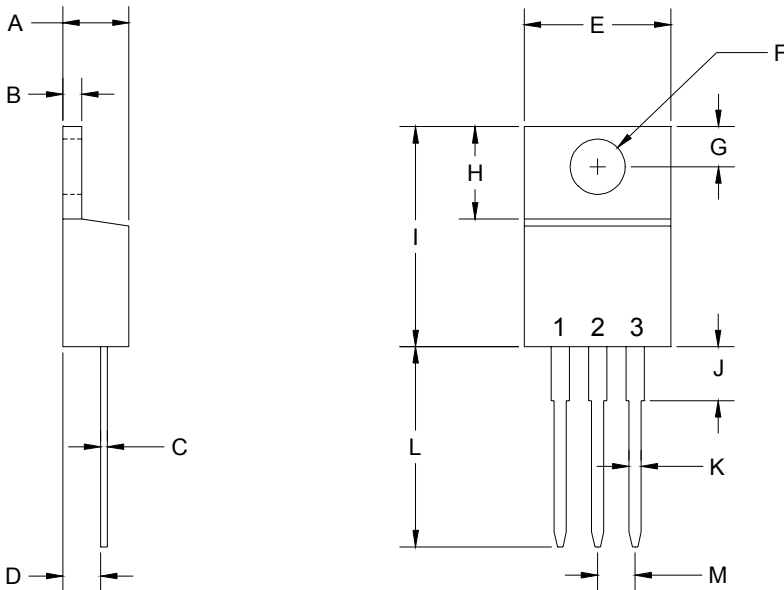
SYMBOL	TEST CONDITIONS	2N6530		2N6531		2N6532		2N6533		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
$I_{CEO}$	$V_{CE}=\text{Rated } V_{CEO}$		1.0		1.0		1.0		1.0	mA
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEV},$ $V_{EB}=1.5\text{V}$		0.5		0.5		0.5		0.5	mA
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEV},$ $V_{EB}=5.0\text{V}, T_C=125^\circ\text{C}$		5.0		5.0		5.0		5.0	mA
$I_{EBO}$	$V_{EB}=5.0\text{V}$		5.0		5.0		5.0		5.0	mA
$BV_{CER}$	$I_C=200\text{mA}, R_{BE}=100\Omega$	80		100		100		120		V
$BV_{CEO}$	$I_C=200\text{mA}$	80		100		100		120		V
$BV_{CEV}$	$I_C=200\text{mA}, V_{EB}=1.5\text{V}$	80		100		100		120		V
$V_{CE(SAT)}$	$I_C=3.0\text{A}, I_B=6.0\text{mA}$				3.0				2.0	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=10\text{mA}$		2.0				2.0			V
$V_{CE(SAT)}$	$I_C=8.0\text{A}, I_B=80\text{mA}$		3.0		3.0		3.0		3.0	V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=3.0\text{A}$				2.8				2.8	V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=5.0\text{A}$		2.8				2.8			V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=8.0\text{A}$		4.5		4.5		4.5		4.5	V

(CONTINUED ON REVERSE SIDE)

**ELECTRICAL CHARACTERISTICS (Continued)**

SYMBOL	TEST CONDITIONS	2N6530		2N6531		2N6532		2N6533		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
$h_{FE}$	$V_{CE}=3.0V, I_C=3.0A$			500	10K			1K	10K	
$h_{FE}$	$V_{CE}=3.0V, I_C=5.0A$	1K	10K			1K	10K			
$h_{FE}$	$V_{CE}=3.0V, I_C=8.0A$	100	5K	100	5K	100	5K	100	5K	
$V_F$	$I_C=10A$		2.8		2.8		2.8		2.8	V
$h_{fe}$	$V_{CE}=5.0V, I_C=1.0A, f=1.0kHz$	1K		1K		1K		1K		
$ h_{fe} $	$V_{CE}=5.0V, I_C=1.0A, f=1.0MHz$	20		20		20		20		
$C_{ob}$	$V_{CB}=10V, I_E=0, f=1.0MHz$		200		200		200		200	pF
$I_{S/b}$	$V_{CE}=24V, t=0.5s$ nonrep.	2.7		2.7		2.7		2.7		A
$E_{S/b}$	$V_{EB}=1.5V, I_C=4.5A,$ $R_{BE}=100\Omega, L=12mH$	120		120		120		120		mJ

**JEDEC TO-220 CASE - MECHANICAL OUTLINE**



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.176	0.190	4.48	4.82
B	0.045	0.055	1.15	1.39
C	0.014	0.026	0.35	0.65
D	0.083	0.106	2.10	2.70
E	0.394	0.417	10.01	10.60
F (DIA)	0.140	0.157	3.55	4.00
G	0.100	0.118	2.54	3.00
H	0.230	0.270	5.85	6.85
I	0.560	0.625	14.23	15.87
J	-	0.250	-	6.35
K	0.025	0.038	0.64	0.96
L	0.500	0.579	12.70	14.70
M	0.090	0.110	2.29	2.79

TO-220 (REV: R1)

R1

Lead Code:

- 1) Base
- 2) Collector
- 3) Emitter

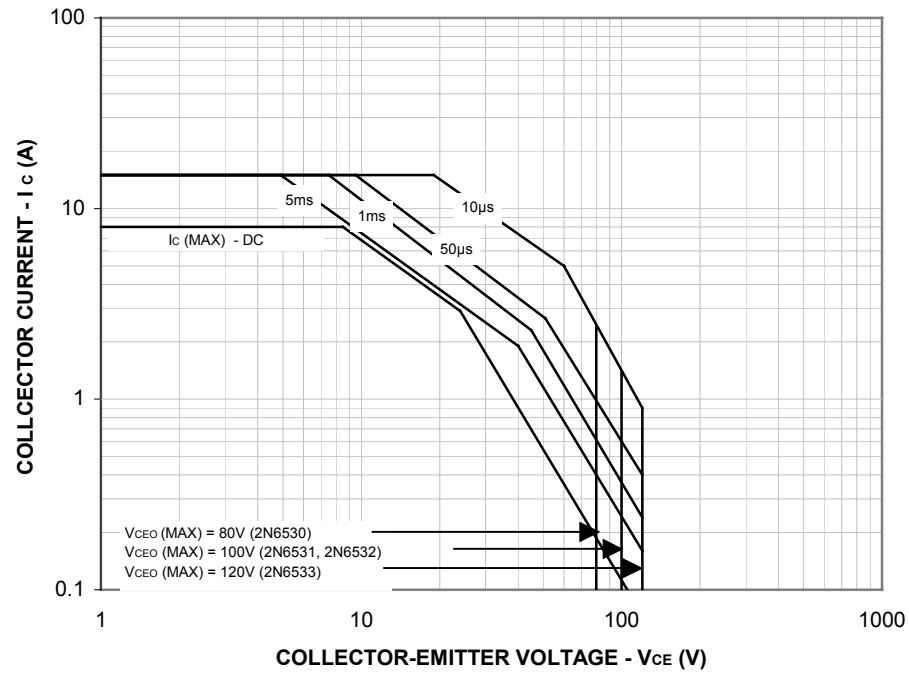
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SAFE OPERATING AREA ( $T_c=25^\circ\text{C}$ )



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