

2N6050 2N6051 2N6052 PNP  
2N6057 2N6058 2N6059 NPN

**COMPLEMENTARY SILICON  
DARLINGTON POWER  
TRANSISTORS**



**TO-3 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N6050, 2N6057 series types are complementary silicon Darlington power transistors, manufactured by the epitaxial base process, designed for high gain amplifier and switching applications.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Peak Collector Current  
Continuous Base Current  
Power Dissipation  
Operating and Storage Junction Temperature  
Thermal Resistance

SYMBOL	2N6050	2N6051	2N6052	UNITS
	2N6057	2N6058	2N6059	
$V_{CBO}$	60	80	100	V
$V_{CEO}$	60	80	100	V
$V_{EBO}$		5.0		V
$I_C$		12		A
$I_{CM}$		20		A
$I_B$		0.2		A
$P_D$		150		W
$T_J, T_{stg}$		-65 to +200		$^\circ\text{C}$
$\theta_{JC}$		1.17		$^\circ\text{C/W}$

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

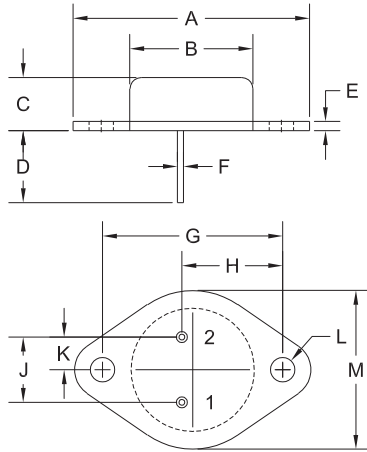
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{EB}=1.5\text{V}$		0.5	mA
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$		5.0	mA
$I_{CEO}$	$V_{CE}=\frac{1}{2}\text{Rated } V_{CEO}$		1.0	mA
$I_{EBO}$	$V_{EB}=5.0\text{V}$		2.0	mA
$BV_{CEO}$	$I_C=100\text{mA}, (2\text{N}6050, 2\text{N}6057)$	60		V
$BV_{CEO}$	$I_C=100\text{mA}, (2\text{N}6051, 2\text{N}6058)$	80		V
$BV_{CEO}$	$I_C=100\text{mA}, (2\text{N}6052, 2\text{N}6059)$	100		V
$V_{CE(SAT)}$	$I_C=6.0\text{A}, I_B=24\text{mA}$		2.0	V
$V_{CE(SAT)}$	$I_C=12\text{A}, I_B=120\text{mA}$		3.0	V
$V_{BE(SAT)}$	$I_C=12\text{A}, I_B=120\text{mA}$		4.0	V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=6.0\text{A}$		2.8	V
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=6.0\text{A}$	750	18K	
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=12\text{A}$	100		
$h_{fe}$	$V_{CE}=3.0\text{V}, I_C=5.0\text{A}, f=1.0\text{kHz}$	300		
$f_T$	$V_{CE}=3.0\text{V}, I_C=5.0\text{A}, f=1.0\text{MHz}$	4.0		MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$ (PNP types)		500	pF
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$ (NPN types)		300	pF

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**TO-3 CASE - MECHANICAL OUTLINE**



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
J	0.420	0.440	10.67	11.18
K	0.205	0.225	5.21	5.72
L (DIA)	0.151	0.172	3.84	4.36
M	0.984	1.050	25.00	26.67

TO-3 (REV: R2)

R2

**LEAD CODE:**

- 1) Base
- 2) Emitter
- Case) Collector

**MARKING:**

**FULL PART NUMBER**

R1 (18-September 2012)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

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

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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