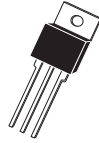


2N6040 2N6041 2N6042 PNP  
2N6043 2N6044 2N6045 NPN

**COMPLEMENTARY SILICON POWER  
DARLINGTON TRANSISTORS**



**TO-220 CASE**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N6040 and 2N6043 Series types are Complementary Silicon Power Transistors, manufactured by the epitaxial base process, designed for general purpose amplifier 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  
Base Current  
Power Dissipation  
Operating and Storage Junction Temperature  
Thermal Resistance

SYMBOL	2N6040	2N6041	2N6042	UNITS
	2N6043	2N6044	2N6045	
$V_{CBO}$	60	80	100	V
$V_{CEO}$	60	80	100	V
$V_{EBO}$		5.0		V
$I_C$		8.0		A
$I_{CM}$		16		A
$I_B$		120		mA
$P_D$		75		W
$T_J, T_{stg}$		-65 to +150		$^\circ\text{C}$
$\theta_{JC}$		1.67		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$V_{CB0}$	$V_{CB}=\text{Rated } V_{CB0}$		20	$\mu\text{A}$
$V_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{BE(\text{OFF})}=1.5\text{V}$		20	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{BE(\text{OFF})}=1.5\text{V}, T_C=150^\circ\text{C}$		200	$\mu\text{A}$
$I_{CEO}$	$V_{CE}=\text{Rated } V_{CEO}$		20	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=5.0\text{V}$		2.0	mA
$BV_{CEO}$	$I_C=100\text{mA}$ (2N6040, 2N6043)	60		V
$BV_{CEO}$	$I_C=100\text{mA}$ (2N6041, 2N6044)	80		V
$BV_{CEO}$	$I_C=100\text{mA}$ (2N6042, 2N6045)	100		V
$V_{CE(\text{SAT})}$	$I_C=4.0\text{A}, I_B=16\text{mA}$ (2N6040, 2N6041, 2N6043, 2N6044)		2.0	V
$V_{CE(\text{SAT})}$	$I_C=3.0\text{A}, I_B=12\text{mA}$ (2N6042, 2N6045)		2.0	V
$V_{CE(\text{SAT})}$	$I_C=8.0\text{A}, I_B=80\text{mA}$		4.0	V
$V_{BE(\text{SAT})}$	$I_C=8.0\text{A}, I_B=80\text{mA}$		4.5	V
$V_{BE(\text{ON})}$	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$		2.8	V
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$ (2N6040, 2N6041, 2N6043, 2N6044)	1,000	20,000	
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=3.0\text{A}$ (2N6042, 2N6045)	1,000	20,000	
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=8.0\text{A}$	100		

R1 (16-November 2009)

2N6040 2N6041 2N6042 PNP  
 2N6043 2N6044 2N6045 NPN

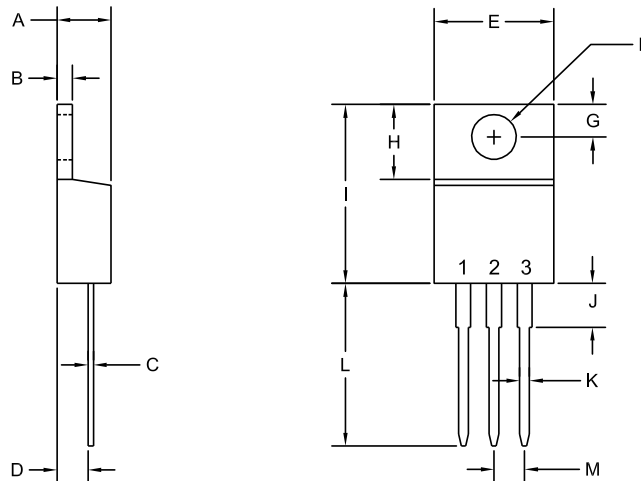


**COMPLEMENTARY SILICON POWER  
 DARLINGTON TRANSISTORS**

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$h_{fe}$	$V_{CE}=4.0\text{V}$ , $I_C=3.0\text{A}$ , $f=1.0\text{kHz}$	300		
$f_T$	$V_{CE}=4.0\text{V}$ , $I_C=3.0\text{A}$ , $f=1.0\text{MHz}$	4.0		MHz
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=100\text{kHz}$ (NPN Types)		200	pF
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=100\text{kHz}$ (PNP Types)		300	pF

**TO-220 CASE - MECHANICAL OUTLINE**



R2

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.170	0.190	4.31	4.82
B	0.045	0.055	1.15	1.39
C	0.013	0.026	0.33	0.65
D	0.083	0.107	2.10	2.72
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: R2)

**LEAD CODE:**

- 1) BASE
- 2) COLLECTOR
- 3) EMITTER
- 4) COLLECTOR

**MARKING:**

FULL PART NUMBER

R1 (16-November 2009)

## 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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**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

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