

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N6050, 2N6051, 2N6052 PNP  
2N6057, 2N6058, 2N6059 NPNCOMPLEMENTARY SILICON  
DARLINGTON POWER TRANSISTORS

JEDEC TO-3 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N6050, 2N6057 Series types are Silicon Complementary Darlington Power Transistors manufactured by the epitaxial base process designed for amplifier and switching applications.

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

	SYMBOL	2N6050 2N6057	2N6051 2N6058	2N6052 2N6059	UNIT
Collector Base Voltage	$V_{CBO}$	60	80	100	V
Collector Emitter Voltage	$V_{CEO}$	60	80	100	V
Emitter Base Voltage	$V_{EBO}$		5.0		V
Collector Current	$I_C$		12		A
Collector Current (PEAK)	$I_{CM}$		20		A
Base Current	$I_B$		0.2		A
Power Dissipation	$P_D$		150		W
Operating and Storage Junction Temperature	$T_J, T_{stg}$		-65 TO +200		$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$		1.17		$^\circ\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{BE}(\text{OFF})=1.5\text{V}$		0.5	mA
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{BE}(\text{OFF})=1.5\text{V}, T_C=150^\circ\text{C}$		5.0	mA
$I_{CEO}$	$V_{CE}=30\text{V}, (2\text{N}6050, 2\text{N}6057)$		1.0	mA
$I_{CEO}$	$V_{CE}=40\text{V} (2\text{N}6051, 2\text{N}6058)$		1.0	mA
$I_{CEO}$	$V_{CE}=50\text{V} (2\text{N}6052, 2\text{N}6059)$		1.0	mA
$I_{EBO}$	$V_{BE}=5.0\text{V}$		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
$V_{CE}(\text{SAT})$	$I_C=6.0\text{A}, I_B=24\text{mA}$		2.0	V
$V_{CE}(\text{SAT})$	$I_C=12\text{A}, I_B=120\text{mA}$		3.0	V
$V_{BE}(\text{SAT})$	$I_C=12\text{A}, I_B=120\text{mA}$		4.0	V
$V_{BE}(\text{ON})$	$V_{CE}=3.0\text{V}, I_C=6.0\text{A}$		2.8	V
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=6.0\text{A}$	750	18,000	
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=12\text{A}$	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
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz} (\text{PNP TYPES})$		500	pF
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz} (\text{NPN TYPES})$		300	pF