

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

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

COMPLEMENTARY SILICON POWER
DARLINGTON TRANSISTOR

JEDEC TO-220AB CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N6040, 2N6043 series types are Silicon Complementary Plastic Power Transistors manufactured by the epitaxial base process designed for general purpose amplifier applications.

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

	SYMBOL	2N6040 2N6043	2N6041 2N6044	2N6042 2N6045	UNIT
Collector-Base Voltage	V_{CB0}	60	80	100	V
Collector-Emitter Voltage	V_{CE0}	60	80	100	V
Emitter-Base Voltage	V_{EB0}	5.0	5.0	5.0	V
Collector Current	I_C	10	10	10	A
Collector Current (Peak)	I_{CM}	16	16	16	A
Base Current	I_B	250	250	250	mA
Power Dissipation	P_D	75	75	75	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 TO +150			$^\circ\text{C}$
Thermal Resistance	θ_{JC}	1.67			$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITONS	MIN	MAX	UNIT
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		20	μA
I_{CEV}	$V_{CE}=\text{Rated } V_{CE0}, V_{BE}(\text{OFF})=1.5\text{V}$		20	μA
I_{CEV}	$V_{CE}=\text{Rated } V_{CE0}, V_{BE}(\text{OFF})=1.5\text{V}, T_C=150^\circ\text{C}$		200	μA
I_{CE0}	$V_{CE}=\text{Rated } V_{CE0}$		20	μA
I_{EB0}	$V_{BE}=5.0\text{V}$		2.0	mA
BV_{CE0}	$I_C=100\text{mA}$ (2N6040, 2N6043)	60		V
BV_{CE0}	$I_C=100\text{mA}$ (2N6041, 2N6044)	80		V
BV_{CE0}	$I_C=100\text{mA}$ (2N6042, 2N6045)	100		V
$V_{CE}(\text{SAT})$	$I_C=4.0\text{A}, I_B=16\text{mA}$ (2N6040, 2N6043)		2.0	V
$V_{CE}(\text{SAT})$	$I_C=4.0\text{A}, I_B=16\text{mA}$ (2N6041, 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, 2N6043)	1,000	10,000	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$ (2N6041, 2N6044)	1,000	10,000	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=3.0\text{A}$ (2N6042, 2N6045)	1,000	10,000	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=8.0\text{A}$	100	-	
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