

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N5875 2N5876 PNP

2N5877 2N5878 NPN

COMPLEMENTARY SILICON
POWER TRANSISTORS

JEDEC TO-3 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5875, 2N5877 series types are Complementary Silicon Power Transistors manufactured by the epitaxial base process mounted in a hermetically sealed metal case designed for general purpose switching and amplifier applications.

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

	SYMBOL	2N5875 2N5877	2N5876 2N5878	UNIT
Collector-Base Voltage	V_{CB0}	60	80	V
Collector-Emitter Voltage	V_{CE0}	60	80	V
Emitter-Base Voltage	V_{EB0}	5.0		V
Collector Current	I_C	10		A
Collector Current (PEAK)	I_C	20		A
Base Current	I_B	4.0		A
Power Dissipation	P_D	150		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 TO +200		$^{\circ}\text{C}$
Thermal Resistance	θ_{JC}	1.17		$^{\circ}\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N5875 2N5877		2N5876 2N5878		UNIT
		MIN	MAX	MIN	MAX	
I_{CEV}	$V_{CE}=\text{Rated } V_{CE0}, V_{BE}(\text{OFF}) 1.5\text{V}$		0.5		0.5	mA
I_{CEV}	$V_{CE}=\text{Rated } V_{CE0}, V_{BE}(\text{OFF})=1.5\text{V}, T_C=150^{\circ}\text{C}$		5.0		5.0	mA
I_{CE0}	$V_{CE}=\frac{1}{2}\text{Rated } V_{CE0}$		1.0		1.0	mA
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		0.5		0.5	mA
I_{EB0}	$V_{EB}=5.0\text{V}$		1.0		1.0	mA
BV_{CE0}	$I_C=200\text{mA}$	60		80		V
$V_{CE}(\text{SAT})$	$I_C=5.0\text{A}, I_B=0.5\text{A}$		1.0		1.0	V
$V_{CE}(\text{SAT})$	$I_C=10\text{A}, I_B=2.5\text{A}$		3.0		3.0	V
$V_{BE}(\text{SAT})$	$I_C=10\text{A}, I_B=2.5\text{A}$		2.5		2.5	V
$V_{BE}(\text{ON})$	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$		1.5		1.5	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=1.0\text{A}$	35		35		
h_{FE}	$V_{CE}=4.0\text{V}, I_C=4.0\text{A}$	20	100	20	100	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=10\text{A}$	4.0		4.0		
h_{fe}	$V_{CE}=4.0\text{V}, I_C=1.0\text{A}, f=1.0\text{kHz}$	20		20		
f_T	$V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1.0\text{MHz}$	4.0		4.0		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$ (PNP TYPES)		500		500	pF
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$ (NPN TYPES)		300		300	pF
t_r	$V_{CC}=30\text{V}, I_C=4.0\text{A}, I_{B1}=I_{B2}=0.4\text{A}$		0.7		0.7	μs
t_{off}	$V_{CC}=30\text{V}, I_C=4.0\text{A}, I_{B1}=I_{B2}=0.4\text{A}$		1.8		1.8	μs