

**PNP 2N5883, 2N5884\*,  
 NPN 2N5885, 2N5886\***

Preferred Device

**Complementary Silicon  
 High-Power Transistors**

... designed for general-purpose power amplifier and switching applications.

- Low Collector-Emitter Saturation Voltage –  
 $V_{CE(sat)} = 1.0 \text{ Vdc}$ , (max) at  $I_C = 15 \text{ Adc}$
- Low Leakage Current  
 $I_{CEX} = 1.0 \text{ mAdc}$  (max) at Rated Voltage
- Excellent DC Current Gain –  
 $h_{FE} = 20$  (min) at  $I_C = 10 \text{ Adc}$
- High Current Gain Bandwidth Product –  
 $f_T = 4.0 \text{ MHz}$  (min) at  $I_C = 1.0 \text{ Adc}$

**MAXIMUM RATINGS (No**

Rating	Symbol	2N5883 2N5885	2N5884 2N5886	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	80	Vdc
Collector-Base Voltage	$V_{CB}$	60	80	Vdc
Emitter-Base Voltage	$V_{EB}$	5.0		Vdc
Collector Current – Continuous Peak	$I_C$	25 50		Adc
Base Current	$I_B$	7.5		Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200 1.15		Watts W/°C
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200		°C

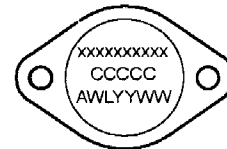
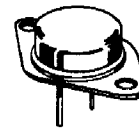
**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$\theta_{JC}$	0.875	°C/W

1. Indicates JEDEC registered data. Units and conditions differ on some parameters and re-registration reflecting these changes has been requested. All above values most or exceed present JEDEC registered data.

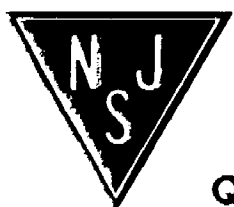
**25 AMPERE COMPLEMENTARY  
 SILICON POWER  
 TRANSISTORS 60 – 80 V 200 W**

**MARKING  
 DIAGRAM**



(TO-3)

- xx = Specific Device Code
- A = Assembly Location
- WL = Wafer Lot
- YY = Year
- WW = Work Week



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

**Quality Semi-Conductors**

## PNP 2N5883, 2N5884\*, NPN 2N5885, 2N5886\*

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

Characteristic		Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage (Note 2) ( $I_C = 200 \text{ mAdc}$ , $I_B = 0$ )	2N5883, 2N5885 2N5884, 2N5886	$V_{CEO(sus)}$	60 80	— —	Vdc
Collector Cutoff Current ( $V_{CE} = 30 \text{ Vdc}$ , $I_B = 0$ ) ( $V_{CE} = 40 \text{ Vdc}$ , $I_B = 0$ )	2N5883, 2N5885 2N5884, 2N5886	$I_{CEO}$	— —	2.0 2.0	mAdc
Collector Cutoff Current ( $V_{CE} = 60 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ ) ( $V_{CE} = 80 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ ) ( $V_{CE} = 60 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 150^\circ\text{C}$ ) ( $V_{CE} = 80 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 150^\circ\text{C}$ )	2N5883, 2N5885 2N5884, 2N5886 2N5883, 2N5885 2N5884, 2N5886	$I_{CEX}$	— — — —	1.0 1.0 10 10	mAdc
Collector Cutoff Current ( $V_{CB} = 60 \text{ Vdc}$ , $I_E = 0$ ) ( $V_{CB} = 80 \text{ Vdc}$ , $I_E = 0$ )	2N5883, 2N5885 2N5884, 2N5886	$I_{CBO}$	— —	1.0 1.0	mAdc
Emitter Cutoff Current ( $V_{EB} = 5.0 \text{ Vdc}$ , $I_C = 0$ )		$I_{EBO}$	—	1.0	mAdc

### ON CHARACTERISTICS

DC Current Gain (Note 2)	( $I_C = 3.0 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ ) ( $I_C = 10 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ ) ( $I_C = 25 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ )	$h_{FE}$	35 20 4.0	— 100	—
Collector-Emitter Saturation Voltage (Note 2)	( $I_C = 15 \text{ Adc}$ , $I_B = 1.5 \text{ Adc}$ ) ( $I_C = 25 \text{ Adc}$ , $I_B = 6.25 \text{ Adc}$ )	$V_{CE(sat)}$	— —	1.0 4.0	Vdc
Base-Emitter Saturation Voltage (Note 2)	( $I_C = 25 \text{ Adc}$ , $I_B = 6.25 \text{ Adc}$ )	$V_{BE(sat)}$	—	2.5	Vdc
Base-Emitter On Voltage (Note 2)	( $I_C = 10 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ )	$V_{BE(on)}$	—	1.5	Vdc

### DYNAMIC CHARACTERISTICS

Current-Gain - Bandwidth Product (Note 3)	( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 10 \text{ Vdc}$ , $f_{test} = 1.0 \text{ MHz}$ )	$f_T$	4.0	—	MHz
Output Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	2N5883, 2N5884 2N5885, 2N5886	$C_{ob}$	— —	1000 500	pF
Small-Signal Current Gain	( $I_C = 3.0 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ , $f_{test} = 1.0 \text{ kHz}$ )	$h_{fe}$	20	—	—

### SWITCHING CHARACTERISTICS

Rise Time	$(V_{CC} = 30 \text{ Vdc}$ , $I_C = 10 \text{ Adc}$ , $I_{B1} = I_{B2} = 1.0 \text{ Adc}$ )	$t_r$	—	0.7	$\mu\text{s}$
Storage Time		$t_s$	—	1.0	$\mu\text{s}$
Fall Time		$t_f$	—	0.8	$\mu\text{s}$

\*Indicates JEDEC Registered Data.

2. Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

3.  $f_T = |h_{fe}| \cdot f_{test}$ .