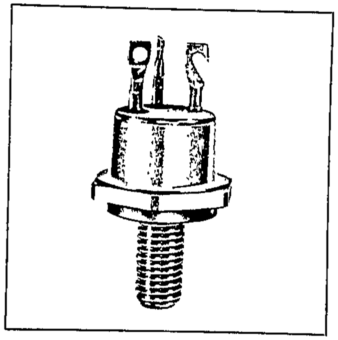
Westinghouse

"O.E.M. Line" Silicon Power Transistors Westinghouse Type 163 Type 164

20 Amperes, 200 Watts
Collector Voltages, 40 to 300 Volts



Typical Applications

- Amplifiers
- Switching Circuits
- Industrial Controls
- Regulators
- Power Supplies
- Pulse Generators
- Oscillators
- Inverters
- Ignition Systems
- Modulators
- Servo Systems
- Sweep Circuits
- Logic Circuits
- Active Filters

Application

Westinghouse Types 163 and 164 NPN silicon power transistors are a series of low-cost units designed expressly to meet the needs of Original Equipment Manufacturers of commercial electronic and control apparatus. Their low saturation resistance, high collector voltage and high temperature characteristics make them ideally suited for use in regulator, amplifier and switching circuits. In many applications, one of these units can replace two or more germanium power transistors.

Maximum Ratings

Voltage

Type		V_{CBO}	V_{CE}	V_{EBO}
163-04	164-04	55	40	15
163-06	164-06	75	60	15
163-08	164-08	95	80	15
163-10	164-10	115	100	15
163-12	164-12	135	120	15
163-14	164-14	155	140	15
163-16	164-16	175	160	15
163-18	164-18	195	180	15
163-20	164-20	215	200	15
163-22	164-22	235	220	15
163-24	164-24	255	240	15
163-26	164-26	275	260	15
163-28	164-28	295	280	15
163-30	164-30	315	300	15

Current

Collector current, I_C, Adc............20
Base current, I_B, Adc................7.5

Power

Power dissipation, P_T @ T_C=75°C, watts, max.....................200
Linear derating factor from 75°C..2.0W/°C

Temperature

Storage and operating temperature, T_{stg}, T_J..............−65 to +175°C

Electrical Characteristics

T_C=25°C unless otherwise specified

	Symbol	Type 163 Min.	Type 163 Typ.	Type 163 Max.	Type 164 Min.	Type 164 Typ.	Type 164 Max.
Collector cut-off current at V_{CEX}=max. rating, T_C=175°C, V_{BE}=−1.5 Vdc, mAdc	I_{CEX}	..	..	30	..	..	30
Emitter cut-off current at V_{EB}=15 Vdc, I_C=0, T_C=175°C, mAdc	I_{EBO}	..	..	25	..	..	25
Turn-on time at V_{CE}=12 Vdc, I_C=5A, I_B=1.0A, microseconds	t_{on}	..	..	6	..	..	..
Turn-on time at V_{CE}=12 Vdc, I_C=5A, I_B=0.6A, microseconds	t_{on}	..	..	..	..	..	6
Turn-off time at V_{CE}=12 Vdc, V_{BE}=−15 Vdc, I_C=5A, I_B=−1.0A, microseconds	t_{off}	..	..	12	..	..	..
Turn-off time at V_{CE}=12 Vdc, V_{BE}=−15 Vdc, I_C=5A, I_B=−0.6A, microseconds	t_{off}	..	..	..	..	..	12
Collector-emitter saturation voltage at I_C=5.0 Adc, I_B=0.5 Adc, Vdc	$V_{CE}(sat)$	..	.30	1.1	..	.25	1.0
Base-emitter voltage at I_C=5.0 Adc, I_B=0.5 Adc, Vdc	$V_{BE}(sat)$	..	1.2	2.2	..	1.40	2.0
Dc current gain at V_{CE}=4 Vdc, I_C=5.0 Adc	h_{FE}	15	..	..	25	..	..

Typical Characteristics

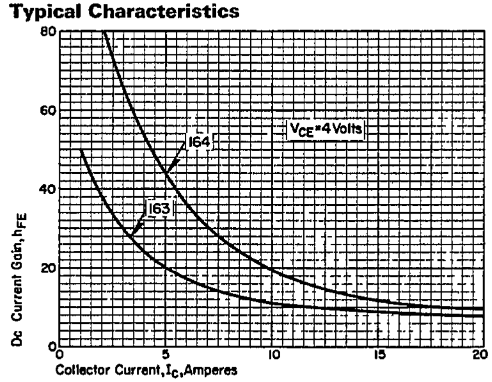


Figure 1. Typical dc gain versus collector current at T_C=25°C.

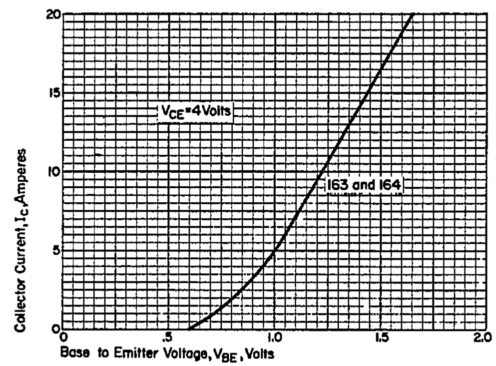


Figure 2. Typical transconductance characteristics at T_C=25°C.

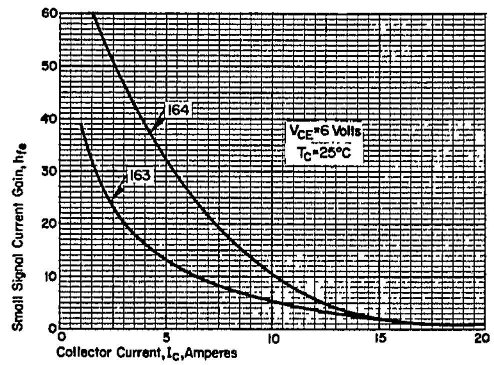


Figure 3. Typical small signal gain versus collector current.

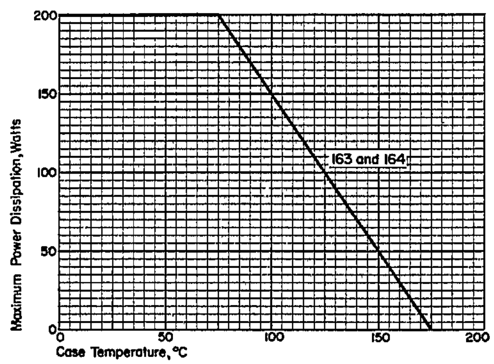
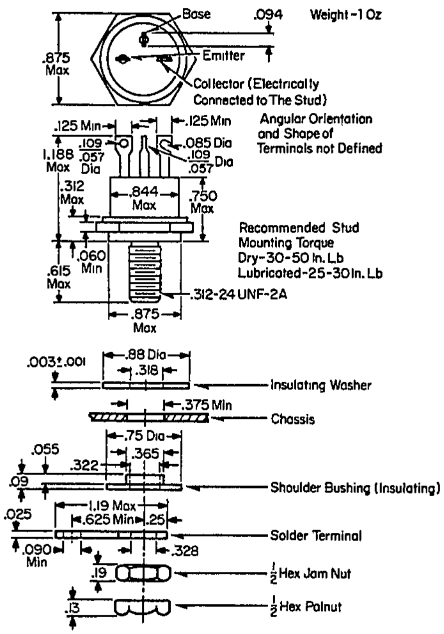


Figure 4. Derating curve.

Dimensions in Inches



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