

7294621 POWEREX INC

40C 00607 D T-33-15

A-45

DATA SHEETS

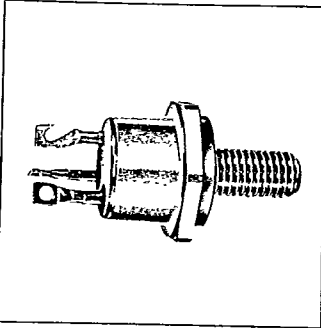


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**"O.E.M. Line"
Silicon Power Transistors
Westinghouse Type 163
Type 164**

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

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.



Westinghouse



Maximum Ratings

Voltage Type	V _{CB0}	V _{CE}	V _{EB0}
163-04	164-04	55	40
163-06	164-06	75	60
163-08	164-08	95	80
163-10	164-10	115	100
163-12	164-12	135	120
163-14	164-14	155	140
163-16	164-16	175	160
163-18	164-18	195	180
163-20	164-20	215	200
163-22	164-22	235	220
163-24	164-24	255	240
163-26	164-26	275	260
163-28	164-28	295	280
163-30	164-30	315	300

Current

Collector current, I_c, A dc.....20
Base current, I_b, A dc.....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_{avg}, T_j.....-65 to +175°C

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

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Electrical Characteristics
 T_C = 25°C unless otherwise specified

Symbol	Type 163		Type 164	
	Min.	Typ.	Max.	Typ.
Collector cut-off current at V _{CE} = max. rating, T _C = 175°C, V _{BE} = -1.5 Vdc, mAdc	30	..
Emitter cut-off current at V _{BE} = 15 Vdc, I _C = 0, T _C = 175°C, mAdc	25	..
Turn-on time at V _{CE} = 12 Vdc, I _C = 5A, I _B = 1.0A, microseconds	6	..
Turn-on time at V _{CE} = 12 Vdc, I _C = 5A, I _B = 0.6A, microseconds	6
Turn-off time at V _{CE} = 12 Vdc, V _{BE} = -15 Vdc, I _C = 5A, I _B = -1.0A, microseconds	12	..
Turn-off time at V _{CE} = 12 Vdc, V _{BE} = -15 Vdc, I _C = 5A, I _B = -0.6A, microseconds	12
Collector-emitter saturation voltage at I _C = 5.0 Adc, I _B = 0.5 Adc, V _{CE} (sat)	1.1	..
Base-emitter voltage at I _C = 5.0 Adc, I _B = 0.5 Adc, V _{CE} (sat)	1.2	..
Dc current gain at V _{CE} = 4 Vdc, I _C = 5.0 Adc	15	25
h _{FE}

Typical Characteristics

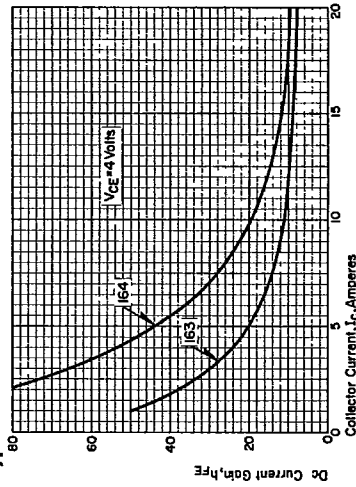


Figure 1. Typical dc gain versus collector current at T_C = 25°C.

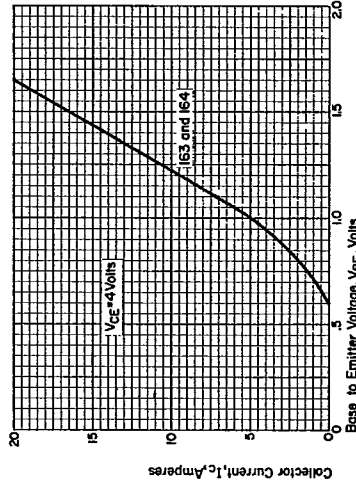
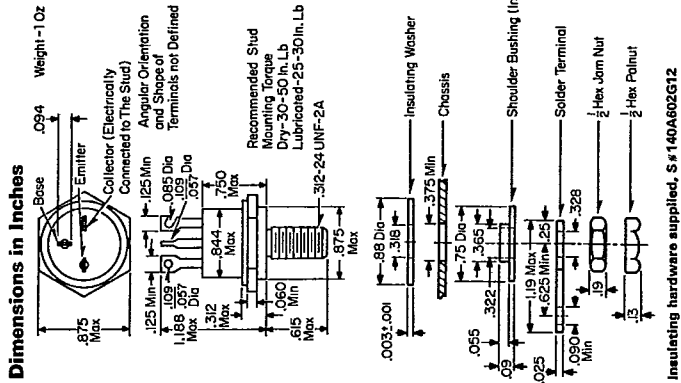


Figure 2. Typical transconductance characteristics at T_C = 25°C.



April, 1967
 Supersedes TD 54-672, pages 5 and 6, dated January, 1964
 E. D. C/2116/DB; E. D. C/2117

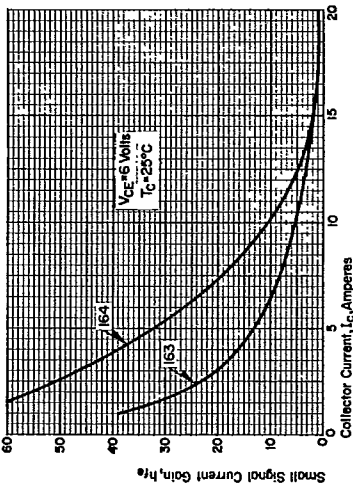


Figure 3. Typical small signal gain versus collector current.

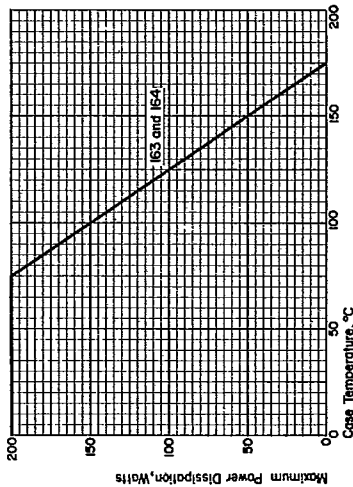


Figure 4. Derating curve.

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