

7294621 POWEREX INC

40C 00571 D T-33-15

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DATA SHEETS



JEDEC types
2N2739-
2N2754

silicon power transistors
for switching, regulator
and amplifier applications

technical
data

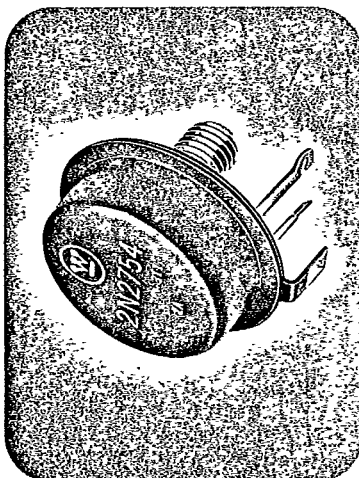
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20 amperes • 200 watts
collector-to-emitter voltage 50 to 200 volts



application



The Westinghouse family of 20-ampere NPN silicon transistors is ideal for application in high power, high efficiency regulators, inverters, and switching circuits. These powerful, lightweight (less than an ounce) transistors are capable of dissipating 200 watts. Extreme environmental capabilities, low saturation resistance, low thermal resistance, and maximum junction temperature of 175°C result in devices which offer greater flexibility in circuit design.

maximum ratings

JEDEC types	collector to emitter volt- age, V _{CE} volts	collector to base volt- age, V _{CB} volts	emitter to base volt- age, V _{EB} volts	collector current, I _C , amps, d-c	base cur- rent, I _B , amps, d-c	thermal resist- ance, θ , °C/ watt	storage and junction temp., T _{stg} , T _j , °C	power dissipation at T _j = 75°C, watts
2N2739 2N2745 2N2751	50	50	15	20	7.5	0.5	-65 to +175	200
2N2740 2N2746 2N2752	100	100	15	20	7.5	0.5	-65 to +175	200
2N2741 2N2747 2N2753	150	150	15	20	7.5	0.5	-65 to +175	200
2N2742 2N2748 2N2754	200	200	15	20	7.5	0.5	-65 to +175	200

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electrical characteristics

	symbol	minimum	typical	max.
(T _C = 25°C unless otherwise specified)				
2N2739-54				
collector current at V _{CE} = V _{CE} (from max ratings), T _J = 175°C, V _{BE} = -1.5 Vdc, mAdc.	I _{CX}	..	8	30
emitter current at V _{BE} = -15 Vdc, I _C = 0, T _J = 175°C, mAdc.	I _{EO}	..	4	25
2N2739-42				
saturation resistance at I _C = 10 Adc, I _B = 2 Adc, ohms.	r _{CE} (sat)	10	0.04	0.15
dc current gain at V _{CE} = 4 Vdc, I _C = 10 Adc	h _{FE}	..	14.0	..
base voltage, at I _C = 10 Adc, I _B = 2 Adc, Vdc	V _{BE} (sat)	..	14.35	2.5
beta cut-off frequency at V _{CE} = 12 Vdc, I _C = 2.5 Adc, kilocycles	f _h	..	14.0	..
turn-on time at I _C = 10 Adc, I _B = 3 Adc, V _{CE} = 12 Vdc, μ seconds	t _d + t _r	..	5.0	..
turn-off time at I _C = 10 Adc, I _B = -1.5 Adc, V _{CE} = 12 Vdc, μ seconds	t _s + t _f	..	13.0	..
2N2745-48				
saturation resistance at I _C = 15 Adc, I _B = 3 Adc, ohms.	r _{CE} (sat)	10	0.042	0.10
dc current gain at V _{CE} = 4 Vdc, I _C = 15 Adc	h _{FE}	..	13.5	..
base voltage, at I _C = 15 Adc, I _B = 3 Adc, Vdc	V _{BE} (sat)	..	14.50	2.5
beta cut-off frequency at V _{CE} = 12 Vdc, I _C = 3.75 Adc, kilocycles	f _h	..	14.5	..
turn-on time at I _C = 15 Adc, I _B = 4.5 Adc, V _{CE} = 12 Vdc, μ seconds	t _d + t _r	..	7.0	..
turn-off time at I _C = 15 Adc, I _B = -2.25 Adc, V _{CE} = 12 Vdc, μ seconds	t _s + t _f	..	14.0	..
2N2751-54				
saturation resistance at I _C = 20 Adc, I _B = 4 Adc, ohms.	r _{CE} (sat)	10	0.037	0.075
dc current gain at V _{CE} = 4 Vdc, I _C = 20 Adc	h _{FE}	..	12.5	..
base voltage, at I _C = 20 Adc, I _B = 4 Adc, Vdc	V _{BE} (sat)	..	1.8	2.5
beta cut-off frequency at V _{CE} = 12 Vdc, I _C = 5 Adc, kilocycles	f _h	..	16.0	..
turn-on time at I _C = 20 Adc, I _B = 6 Adc, V _{CE} = 12 Vdc, μ seconds	t _d + t _r	..	8.0	..
turn-off time at I _C = 20 Adc, I _B = -3 Adc, V _{CE} = 12 Vdc, μ seconds	t _s + t _f	..	15.0	..

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DATA SHEETS



typical characteristics 2N2739-42 series

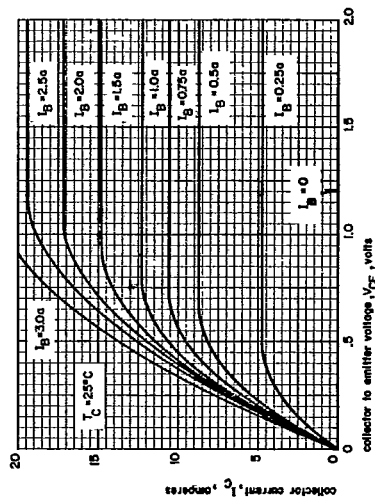


figure 1. Output characteristics—saturation region.

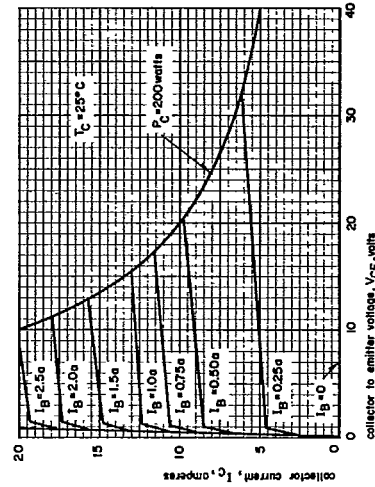


figure 2. Output characteristics.

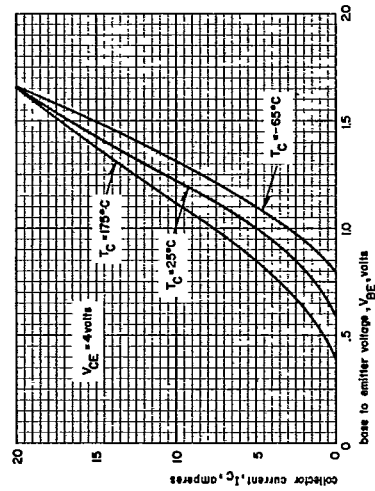


figure 3. Transconductance characteristics.

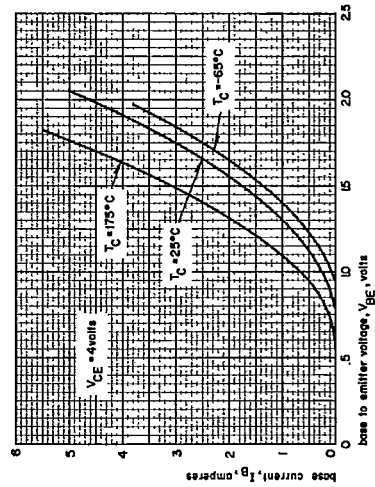


figure 4. Input characteristics.

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2N2745-48 series

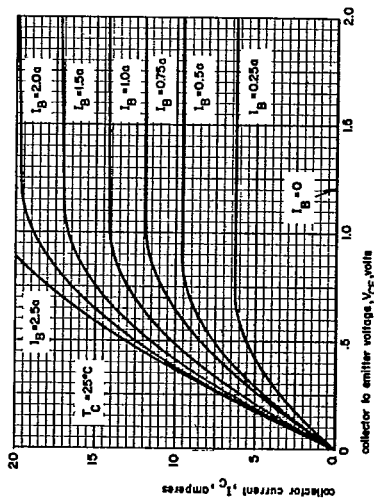


Figure 5. Output characteristics—saturation region.

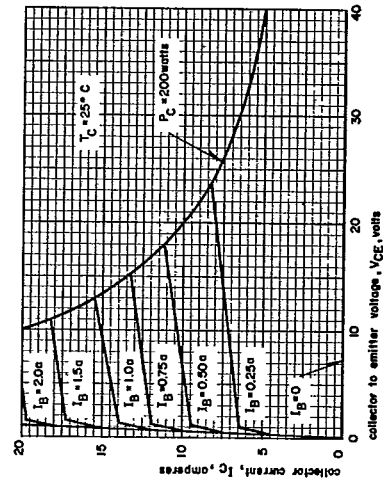


Figure 6. Output characteristics.

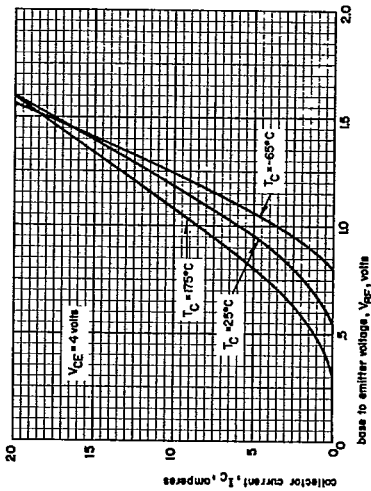


Figure 7. Transconductance characteristics.

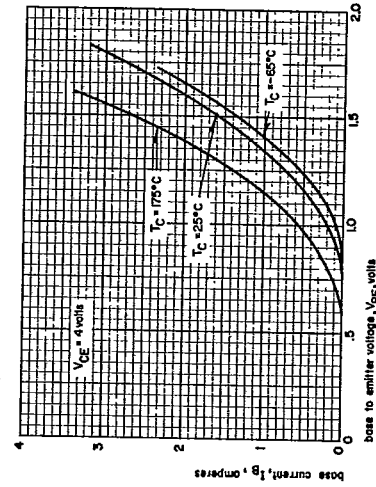


Figure 8. Input characteristics.

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2N2751-54 series

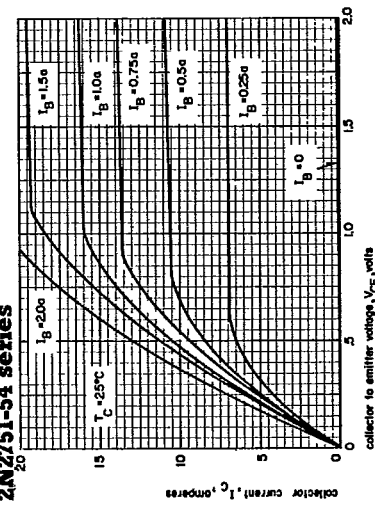


Figure 9. Output characteristics—saturation region.

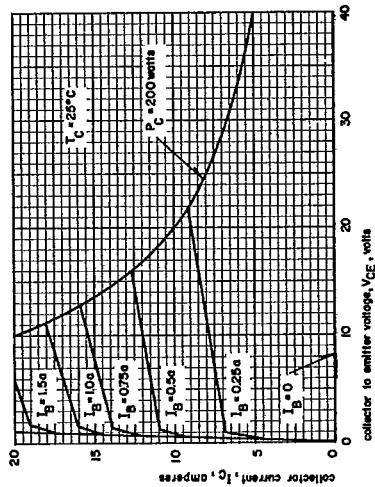


Figure 10. Output characteristics.

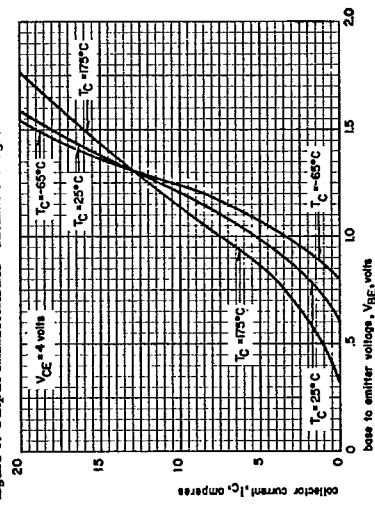


Figure 11. Transconductance characteristic.

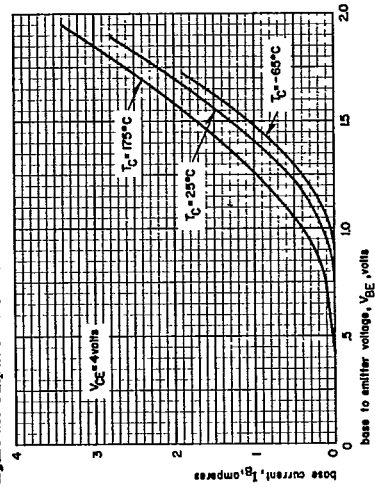


Figure 12. Input characteristic.

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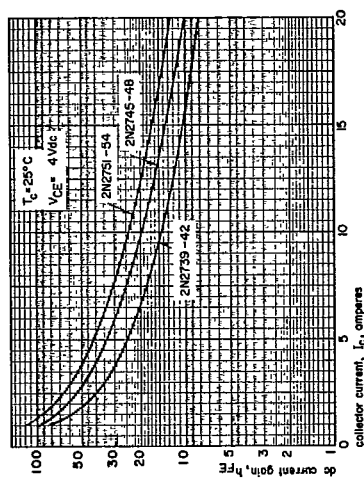
2N2739-54 series

figure 13. D-c current gain versus collector current.

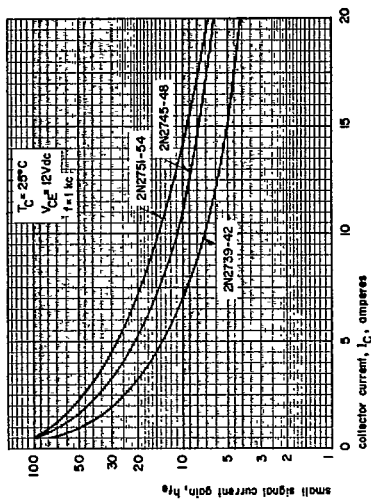


figure 14. Small signal gain versus collector current.

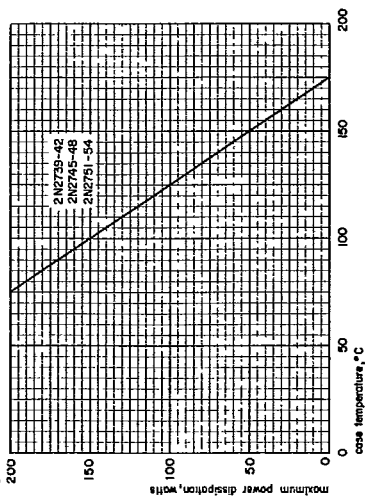


figure 15. Derating curve.

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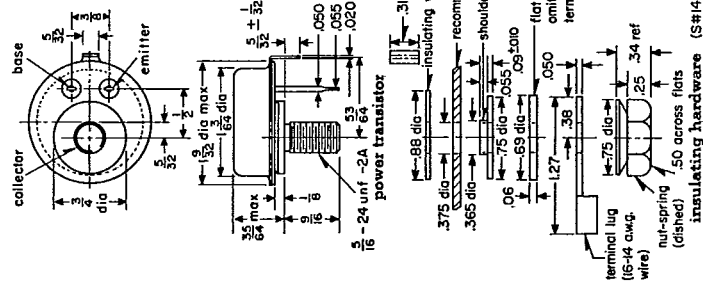
DATA SHEETS



further information

**not to be used for
construction purposes
unless approved**

dimensions in inches



price list 54-020

prices

other Westinghouse Semiconductor products

low power silicon rectifiers
technical data 54-161

medium power silicon rectifiers technical data 94-162-64

high power silicon rectifiers technical data 54-165-68

high power silicon rectifiers
bi-molecular junction diodes A-1094 d-4 E4 261 SA
technical data 34-103-00

high voltage semiconductor stacks technical data 34-201-04

silicon controlled rectifiers
technical data 34-562-66silicon power transistors
technical data 54-661-72

thermoelectric coolers
technical data 54-760-69

Hall generators technical data 54-961

PTC thermistors
technical data 54-967

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March, 1963
new information
mailed to: E/163/DB: C/448 607/AD