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Westinghouse



Silicon Power Transistors JEDEC Types 2N3429-33

7.5 Amperes, 150 Watts
Collector-to-Emitter Voltage 50 to 250
Volts

Application

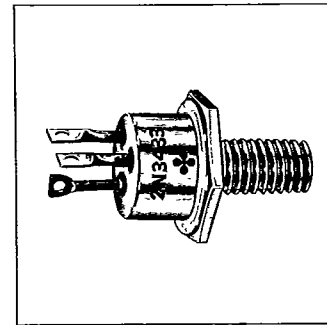
The Westinghouse 2N3429 series are NPN fused silicon power transistors specifically designed for high power switching, amplifier and regulator applications. Exhibiting extremely low saturation resistance, low thermal resistance, and unequaled operating capabilities at true voltage ratings coupled with high temperature capabilities, these transistors result in new flexibility in circuit applications.

Like all Westinghouse silicon power transistors, these devices are free from second breakdown within the complete range of maximum current-voltage ratings. Hard solder construction assures freedom from thermal fatigue. These devices also feature Westinghouse exclusive quality assurance with 100 per cent power testing for the ultimate in application reliability. In addition, each production lot is further subjected to rigid environmental testing.

All of these transistors carry the Westinghouse Lifetime Guarantee.

Guarantee

Westinghouse warrants to the original purchaser that it will correct any defect or defects in workmanship, by repair or replacement f.o.b. factory, for any silicon power semiconductor bearing this symbol  during the life of the equipment in which it is originally installed, provided said device is used within manufacturer's published ratings and applied in accordance with good engineering practice. This warranty shall constitute a fulfillment of all Westinghouse liabilities in respect to said products. This warranty is exclusive and in lieu of all other warranties of quality, whether written, oral, or implied (including any warranty of merchantability or fitness for purpose). Westinghouse shall not be liable for any consequential damages.



Typical Applications

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

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Maximum Ratings

① The maximum collector to emitter voltage rating is guaranteed up to the maximum rated power dissipation of the transistor with the base emitter forward biased.

The maximum collector to emitter voltage rating is given for the "load-down" voltages BV_{CE} , BV_{CE0} , BV_{CEsat} and the open-circuit voltage V_{CE0} in the safe operating region. Each transistor is power tested within its maximum limits of V_{CE} , P_D and I_C .

Voltage

*Collector to emitter, V_{CE} ① Vdc	2N3429 ①	50
	2N3430 ①	100
	2N3431 ①	150
	2N3432 ①	200
	2N3433 ①	250

*Emitter to base, V_{EBO} Vdc
Collector to base, V_{CB} Vdc..... equal to rated V_{CE}

Current

*Collector current, I_C Adc	.....	7.5
*Base current, I_B Adc	.....	3.0
Emitter current, I_E Adc	.....	7.5

Power

*Power dissipation, P_T at $T_C=60^\circ\text{C}$, watts, max.	.....	150
Typical thermal drop, case to heat sink, $^\circ\text{C}/\text{watt}$	.....	.75
*Linear derating factor from 60°C , Watts/ $^\circ\text{C}$	.....	1.33

Temperature

*Case temperature, T_C $^\circ\text{C}$	.....	+175
*Storage temperature, T_{STG} $^\circ\text{C}$ min.	.....	-65
max.	.....	+175

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

	Symbol	Minimum	Typical	Max.	Units
Collector cut-off current at $V_{CEX}=\text{max. rating}$, $V_{BE}=-1.5$ Vdc.	I_{CEX}	..	....	* 2	mAdc
Collector cut-off current at $V_{CEX}=\text{max. rating}$, $T_C=175^\circ\text{C}$, $V_{BE}=-1.5$ Vdc.	I_{CEX}	..	....	*10	mAdc
Emitter cut-off current at $V_{EB}=25$ Vdc, $I_C=0$, $T_C=175^\circ\text{C}$.	I_{EBO}	..	....	*10	mAdc
Turn-on time	t_{on}	..	3	5	μsec
Turn-off time	t_{off}	..	6	*12	μsec
Collector-emitter sustaining voltage at $I_C=500$ mAdc.	V_{CEO}	See Maximum Rating			
Collector-emitter saturation voltage at $I_C=5$ Adc, $I_B=750$ mAdc.	$V_{CE(sat)}$	..	0.5	* 1.0	Vdc
Base-emitter voltage at $I_C=5$ Adc, $I_B=750$ mAdc.	$V_{BE(sat)}$	..	1.3	* 2.0	Vdc
Dc current gain at $V_{CE}=2$ Vdc, $I_C=5$ Adc.	h_{FE}	*10	16	....	....
Gain bandwidth product at $I_C=5$ Adc.	f_T	..	200	....	kHz

*JEDEC registered parameters.

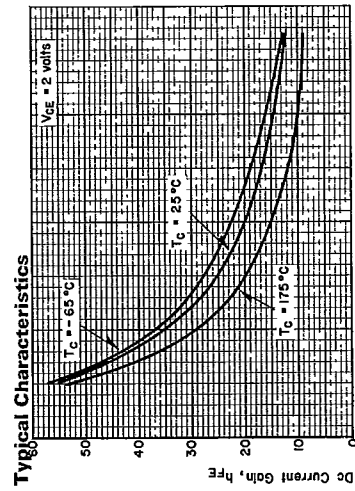


Figure 1. Typical DC gain versus collector current.

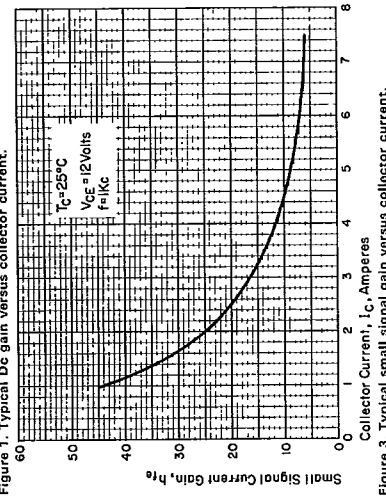


Figure 3. Typical small signal gain versus collector current.

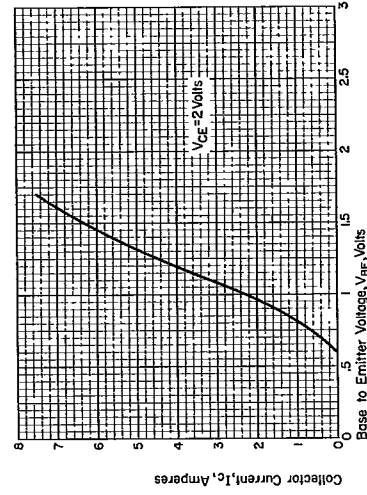


Figure 2. Typical saturation characteristics at $T_C = 25^\circ\text{C}$.

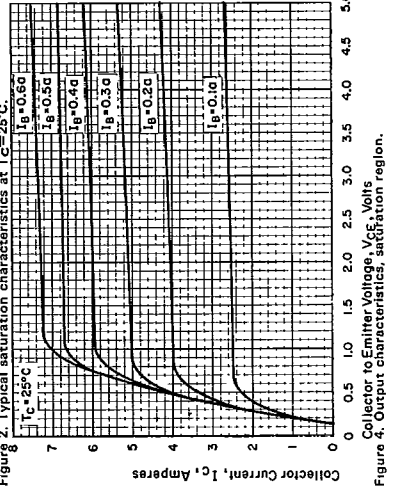
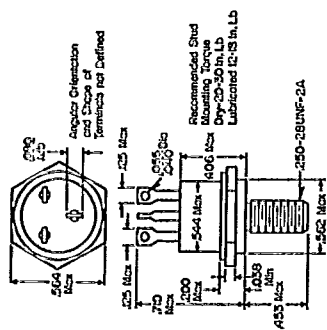


Figure 4. Output characteristics, saturation region.



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Dimensions in Inches



Insulating Hardware Supplied, Sx140AG01G23

February, 1967
Supersedes TD 54-661, pages 3, 4, dated Sep-
tember, 1964
E, D, C/2116/DB; E, D, C/2117

Typical Characteristics

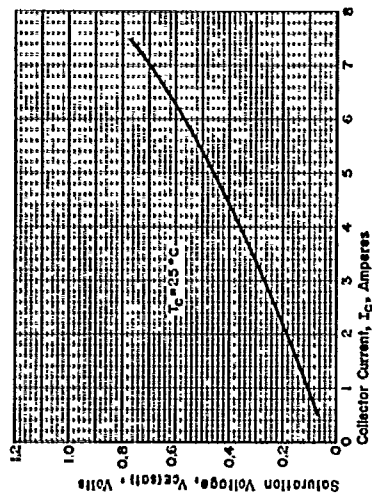


Figure 5, Typical output saturation characteristics.

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