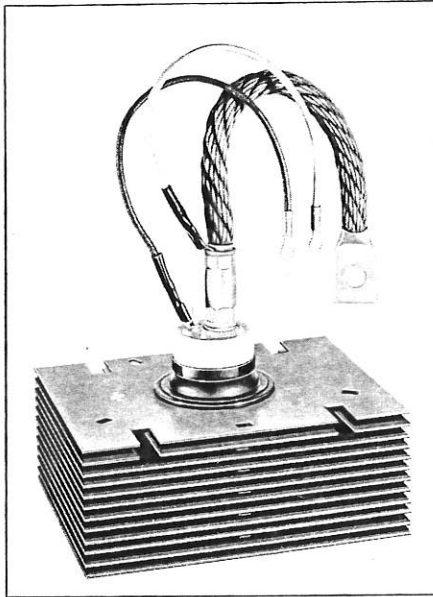


Westinghouse



Thyristor Silicon Controlled Rectifiers Westinghouse Type 276+

Forward Current 470 Amps RMS
300 Amperes Half-Wave Average
Forward Blocking Voltages to 1500 Volts

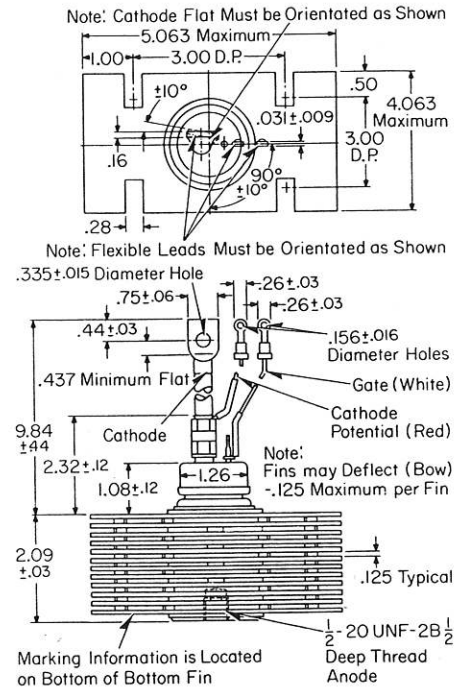


Application

Designed for cycling loads, thyristor SCR Type 276 with its 5500 ampere surge rating, is especially suitable for such applications as motor control, starters, and primary controlled power systems, where high inrush currents are encountered. This surge rating, combined with 120,000 amp² sec I²t rating allows optimum fuse coordination. The exclusive Westinghouse CBE construction technique eliminates failures caused by thermal stresses by doing away with solder joints. In addition the entire series carries a guaranteed minimum dv/dt rating, and the Westinghouse Lifetime Guarantee.

✦ Westinghouse Lifetime Guarantee

Westinghouse warrants to the original purchaser that it will correct any 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 in lieu of all other warranties expressed or implied. Westinghouse shall not be liable for any consequential damages.



Maximum Ratings and Characteristics

Blocking State (T _J =125°C)	Symbol	Westinghouse Type														
		276B	276D	276F	276H	276K	276M	276P	276S	276V	276Z	276ZB	276ZD	276ZF	276ZH	276ZK ^③
Repetitive Peak Forward and Reverse Voltage, ^② volts	V _{FB} V _{RB}	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
Non-repetitive Transient Peak Forward and Reverse Voltage, volts ≤5.0 msec.	V _{FT} V _{RBT}	200	300	400	500	600	700	850	950	1100	1200	1300	1450	1550	1700	1800
Peak Forward and Reverse Leakage Current, mA	I _{FB} I _{RB}	← 15 →														

Conducting State (T _J =125°C)	Symbol	All Types
RMS Forward Current, amps.	I _{RMS}	470
Ave. Forward Current (180° Conduction) amps.	I _{AVE}	300
Surge Current (at 60 Hz): 1/2 Cycle, amps.	I _{FM}	5500
3 Cycles, amps.	I _{FM}	3900
10 Cycles, amps.	I _{FM}	3400
I ² t for Fusing (at 60 Hz half-wave), amp ² sec.	I ² t	120,000
Forward Voltage Drop at T _J =25°C		
I _F =100 Adc, volts.	V _F	1.15
I _F =625 Adc, volts.	V _F	1.55
I _F =1500 Adc, volts.	V _F	2.15

Thermal Characteristics	Symbol	All Types
Oper. Junction Temp. Range, °C.	T _J	-40 to +125
Storage Temperature Range, °C.	T _{stg}	-40 to +150
Thermal Impedance, °C/Watt:		
Junction to Ambient.	θ _{JA}	0.18

Gate Parameters (T _J =25°C)	Symbol	All Types
Gate Current to Trigger (V _{FB} =12V), ma.	I _{GT}	150
Gate Voltage to Trigger (V _{FB} =12V), volts	V _{GT}	3
Non-Triggering Gate Voltage at T _J =125°C (Rated V _{FB}), volts.	V _{GNT}	0.15
Peak Forward Gate Current, amps.	i _{GFM}	4
Peak Reverse Gate Voltage, volts.	V _{GRM}	5
Peak Gate Power, watts.	P _{GM}	16
Average Gate Power, watts.	P _{G(AV)}	3

Switching State	Symbol	All Types
Typical Turn-On Time, I _F =100A, 10-90%, V _{FD} =10 volts ^④ , T _J =25°C, μsec.	t _{on}	5
Min. di/dt, Linear to 5.0 I _{AVE} ^④ amps/μsec.	di/dt	100
Typical Turn-Off Time, I _F =150 A, T _J =125°C, di _R /dt=50A/μsec., dv/dt=20V/μsec. Linear to .8 V _{FB} , μsec.	t _{off}	100
Min. dv/dt, Exp. to V _{FB} , T _J =125°C, volts/μsec.	dv/dt	300

④ With recommended gate drive. See AD 54-560.

② Applies for zero or negative gate voltage.
③ For higher voltages refer to Westinghouse.

June, 1968
New Information
E, D, C/2115/DB; E, D, C/2117

Thyristor Silicon Controlled Rectifiers Westinghouse Type 276

Forward Current 470 Amps RMS
300 Amperes Half-Wave Average
Forward Blocking Voltages to 1500 Volts

Electrical Characteristics – Air Flow, 1500 LFM

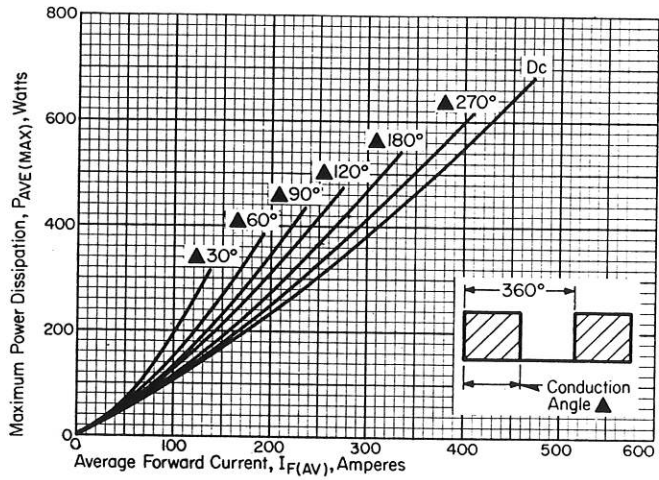


Figure 1. Power dissipation vs forward current, rectangular wave.

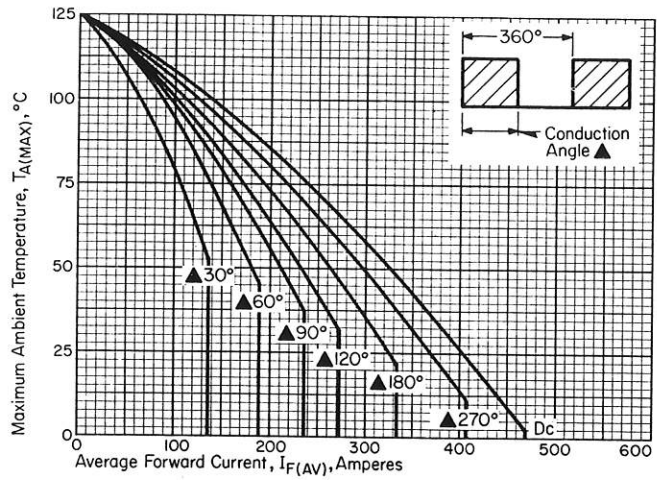


Figure 2. Ambient temperature vs forward current, rectangular wave.

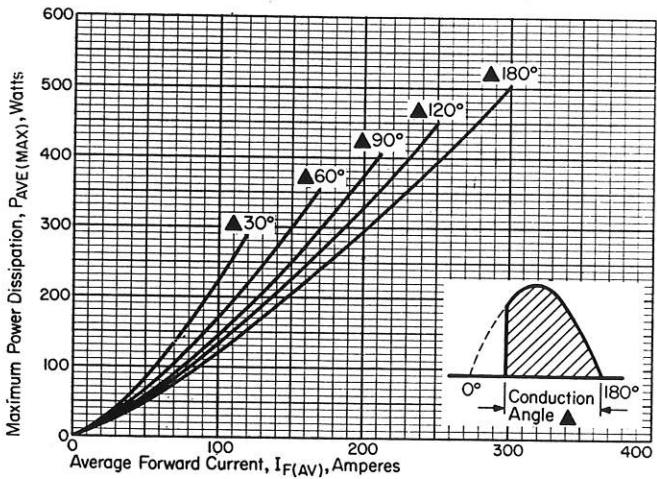


Figure 3. Power dissipation vs forward current, half-wave sinusoid.

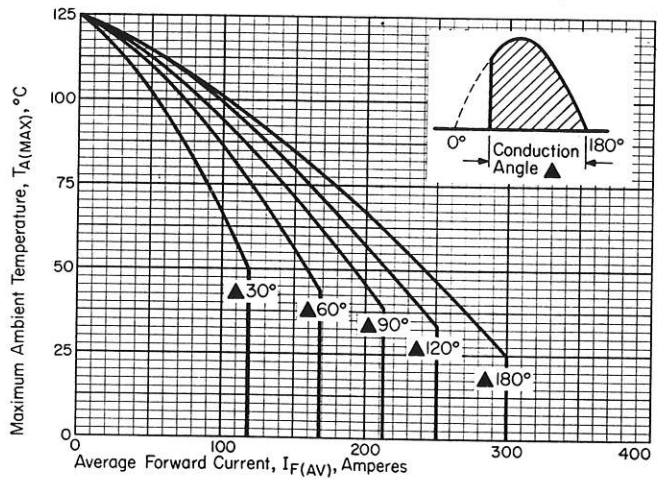


Figure 4. Ambient temperature vs forward current, half-wave sinusoid.

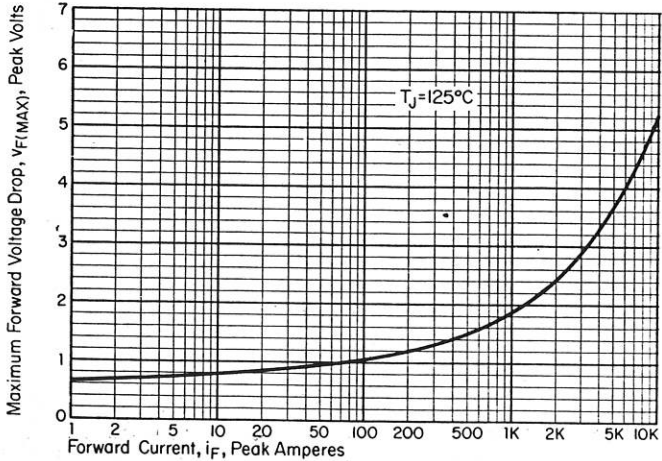


Figure 5. Forward voltage vs forward current.

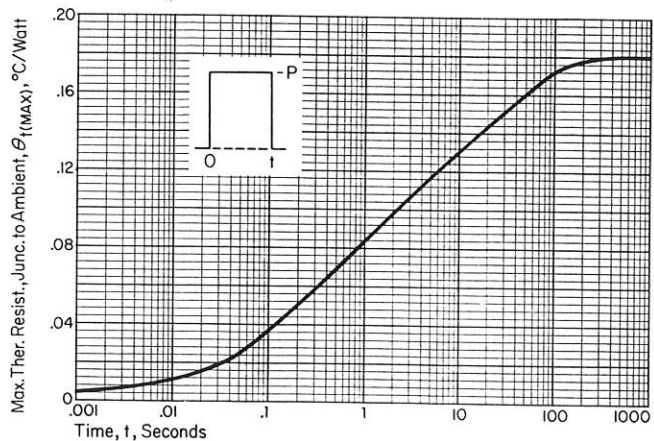


Figure 6. Transient thermal impedance vs time.