

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

### MAXIMUM RATINGS

Rating	Symbol	2N3668	2N3669	2N3670	2N4103	Units
Non-repetitive peak reverse voltage	$V_{RM}$	150	330	660	700	V
Peak repetitive reverse voltage	$V_{RRM}$	100	200	400	600	V
Peak forward blocking voltage	$V_{FBOM}$	100	200	400	600	V
Forward current for case temperature $T_C = +80^\circ\text{C}$ @ average DC value at a conduction angle of $180^\circ$ RMS value	$I_{FAV}$ $I_{FRMS}$	8 12.5				A
Peak surge current for one cycle of applied voltage 60 Hz (sinusoidal), $T_C = 80^\circ\text{C}$ 50 Hz (sinusoidal), $T_C = 80^\circ\text{C}$	$I_{FM}$	200 200 170				A
Fusing current ( $T_J = -40$ to $+100^\circ\text{C}$ , $t = 1$ to $8.3\text{ms}$ )	$I^2t$	170				$\text{A}^2\text{s}$
Rate of change of forward current $V_{FB} = V_{BOO}$ , $I_{GT} = 200\text{mA}$ , $0.5\text{ns}$ rise time	$di/dt$	200				$\text{A}/\mu\text{s}$
Peak gate power for 10ns duration	$P_{GM}$	40				W
Average gate power	$P_{GAV}$	0.5				W
Storage temperature	$T_{stg}$	-40 to +125				$^\circ\text{C}$
Operating case temperature	$T_C$	-40 to +100				$^\circ\text{C}$

\*Any values of peak gate current or peak gate voltage to give the maximum gate power is permissible.

\* Temperature reference point is within  $1/8''$  of the center of the underside of unit.

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	2N3668			2N3669			2N3670			2N4103			Units
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Peak repetitive blocking voltage @ $T_C = 100^\circ\text{C}$	$V_{DROM}$	100	-	-	200	-	-	400	-	-	600	-	-	V
Forward peak blocking current @ $T_C = 100^\circ\text{C}$ , $V_D = V_{DROM}$	$I_{DOM}$	-	0.2	2	-	0.25	2.5	-	0.3	3	-	0.35	4	mA
Reverse peak blocking current @ $T_C = 100^\circ\text{C}$ , $V_R = V_{RROM}$	$I_{ROM}$	-	0.05	1	-	0.1	1.25	-	0.2	1.5	-	0.3	3	mA
Forward voltage drop @ 25A $T_C = 25^\circ\text{C}$	$V_F$	-	1.5	1.8	-	1.5	1.8	-	1.5	1.8	-	1.5	1.8	V
DC gate-trigger current @ $T_C = 25^\circ\text{C}$	$I_{GT}$	1	20	40	1	20	40	1	20	40	1	20	40	mA
DC gate-trigger voltage @ $T_C = 25^\circ\text{C}$	$V_{GT}$	-	1.5	2	-	1.5	2	-	1.5	2	-	1.5	2	V
Holding current @ $T_C = 25^\circ\text{C}$	$I_H$	0.5	25	50	0.5	25	50	0.5	25	50	0.5	25	50	mA
Critical rate of forward voltage $V_F = V_{BOO}$ , exponential rise $T_C = 100^\circ\text{C}$	$dv/dt$	10	100	-	10	100	-	10	100	-	10	100	-	$\text{V}/\mu\text{s}$

# 2N3668-2N3670, 2N4103

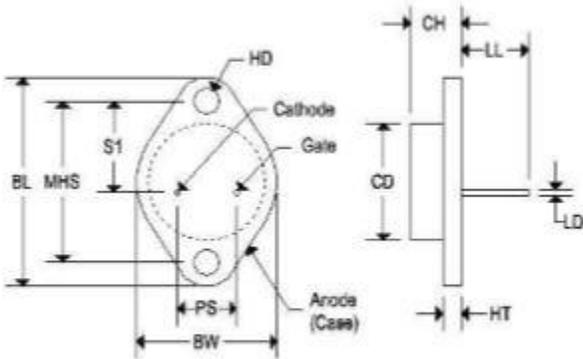
## SILICON CONTROLLED RECTIFIERS

### ELECTRICAL CHARACTERISTICS (@ maximum ratings and indicated case temperature (T<sub>c</sub>))

Characteristic	Symbol	2N3668			2N3669			2N3670			2N4103			Units
		Min	Typ	Max										
<b>Turn-on time</b> (delay time + rise time) $V_D = V_{DROM}, I_F = 8A, I_G = 200mA, 0.1\mu s$ rise time, $T_C = 25^\circ C$	$t_{on}$	-	1.25	-	-	1.25	-	-	1.25	-	-	1.25	-	$\mu s$
<b>Turn-off time</b> (reverse recovery time + gate recovery time) $I_F = 8A, 50ns$ pulse width, $dv_{FS}/dt = 20V/\mu s,$ $di_G/dt = 30A/\mu s, I_{GT} = 200mA, T_C = 80^\circ C$	$t_{off}$	-	20	50	-	20	50	-	20	50	-	20	50	$\mu s$
<b>Thermal resistance</b> Junction to case	$R_{\theta JC}$	-	-	1.7	-	-	1.7	-	-	1.7	-	-	1.7	$^\circ C/W$

### MECHANICAL CHARACTERISTICS

Case:	TO-3
Marking:	Body painted, alpha-numeric
Pin out:	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	-	0.135	-	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

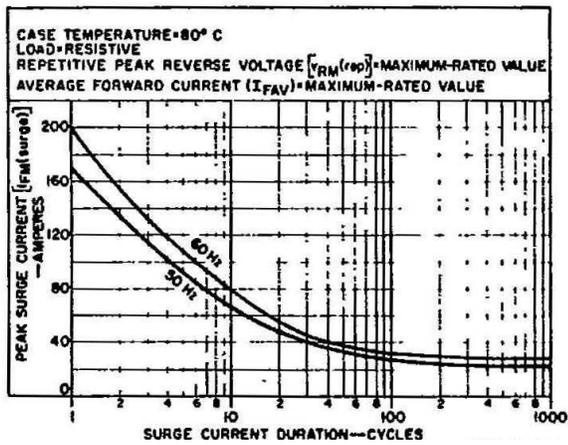


Fig. 1 – Peak surge current vs. surge current duration

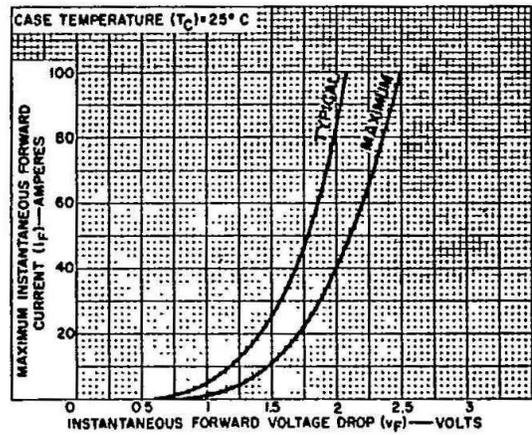


Fig. 2 - Instantaneous forward current vs. Instantaneous forward voltage drop

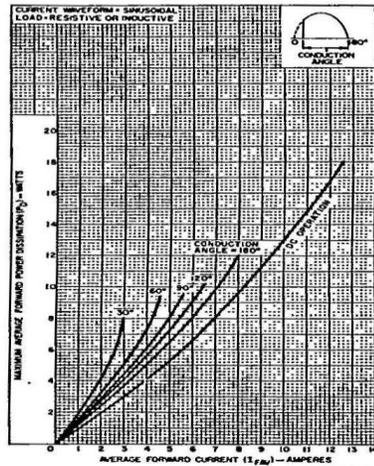


Fig. 3 — Power dissipation vs. forward current.

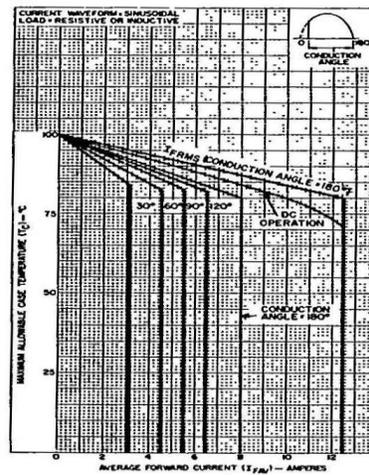


Fig. 4 — Maximum allowable case temperature vs. average forward current.

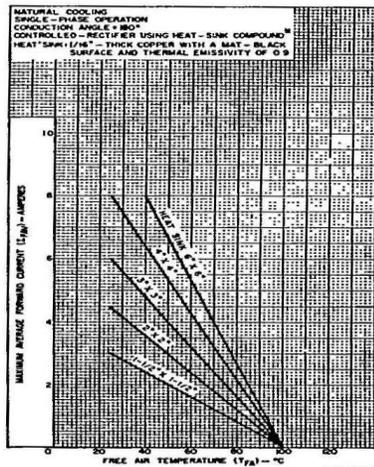


Fig. 5 — Natural-cooling operation guidance chart.

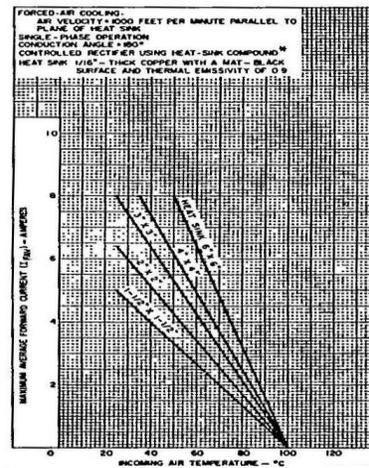


Fig. 6 — Forced-air cooling operation guidance chart.

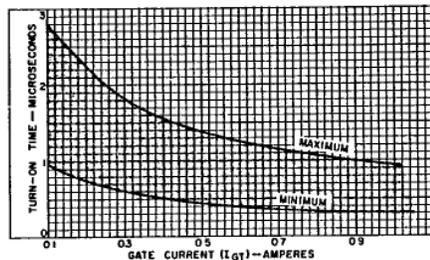


Fig. 7 — Turn-on time vs. gate current.