Ruttonsha International Rectifier Ltd.

RUTTONSHA

SILICON RECTIFIERS

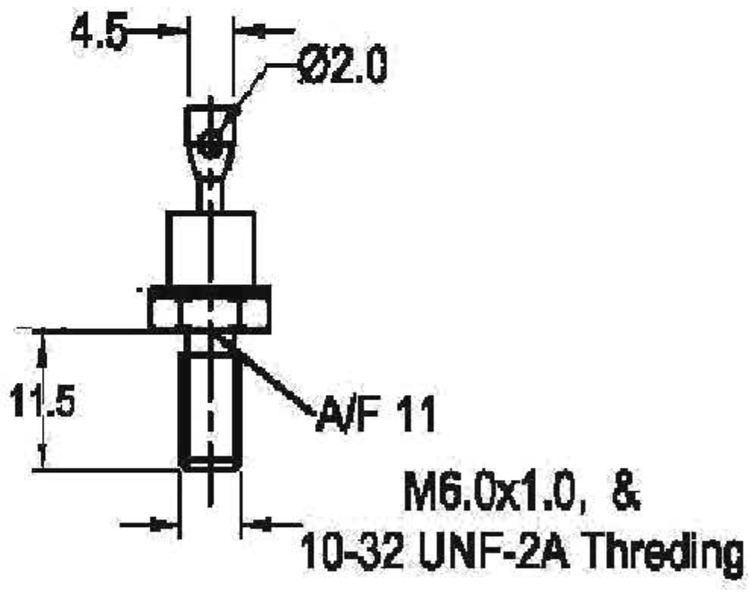
12 & 16 Ampere Fast Recovery Diodes

FEATURES

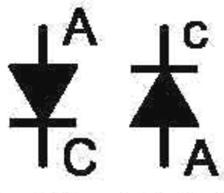
- ¢ *Short reverse recovery time*
- ¢ *Available in normal & reverse polarity.*
- ¢ *Low stored charge.*
- ¢ *Device outline conforms to IS 5000 (Do. 4) except stud.*
- ¢ *Fully characterised reverse recovery conditions.*

ELECTRICAL SPECIFICATIONS		12FL	16 FL
$I_{F(AV)}$	Maximum average forward current T_c = 100^{0}C	12A	16A
V_{FM}	Maximum peak forward voltage drop @ Rated $I_{F(peak)}$	1.4 V	1.4 V
I_{FSM}	Maximum peak one cycle (non-rep.) surge current 10 msec	145 A	180 A
I^2t	Max. I^2t rating (non-rep.) for 10 msec.	103 A^2S	160 A^2S
$V_{F(TO)}$	Max, value of threshold voltage	1.2V	
rf	Max, value of forward slop resistance	35mΩ	20mΩ

12/16FL/ FLR



UNIT - M.M.



FM...FMR...

THERMAL MECHANICAL SPECIFICATIONS

θ_{J-C}	Maximum thermal resistance junction to cas	2^{0}C/W	1.6^{0}C/W
θ_{C-H}	Contact thermal resistance	0.5^0 C/W	
T_J	Operating junction temp.	-65^{0}C to 150^{0}C	
T_{stg}	Storage temperature	-65^{0}C to 175^{0}C	
	Mounting torque (Non-lubricated threads)	0.14 M-Kg min. 0.17 M-Kg max.	
W	Approx. weight	7 gms.	

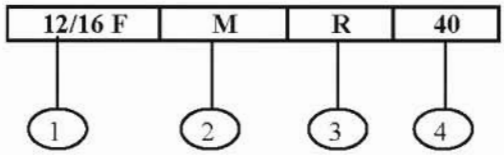
REVERSE RECOVERY CHARACTERISTICS		UNIT	CONDITIONS
trr Max. Reverse Recovery time	500	ns	Tj=25 C,I_F =1A,Vr=30V, dif/dt=25 A/us

ELECTRICAL RATINGS

TYPE NUMBER 12/16 FL		10	20	40	60	80	100
V_{RRM}	Max. repetitive peak reverse voltage (V)	100	200	400	600	800	1000
V_{RSM}	Max. non-repetitive peak reverse voltage (V)	150	300	500	700	900	1100
$V_{R(RMS)}$	Max. R.M.S. reverse voltage (V)	70	140	280	420	560	700
V_R	Max. D.C. Blocking voltage (V)	100	200	400	600	800	1000
	Recommended R.M.S. working voltage (V)	40	80	160	240	320	400
	I_{RM}Max. Peak reverse leakage current @ V_{RRM} ,T_j = 150^{0}C (mA)	6	6	6	6	6	6

SILICON RECTIFIERS

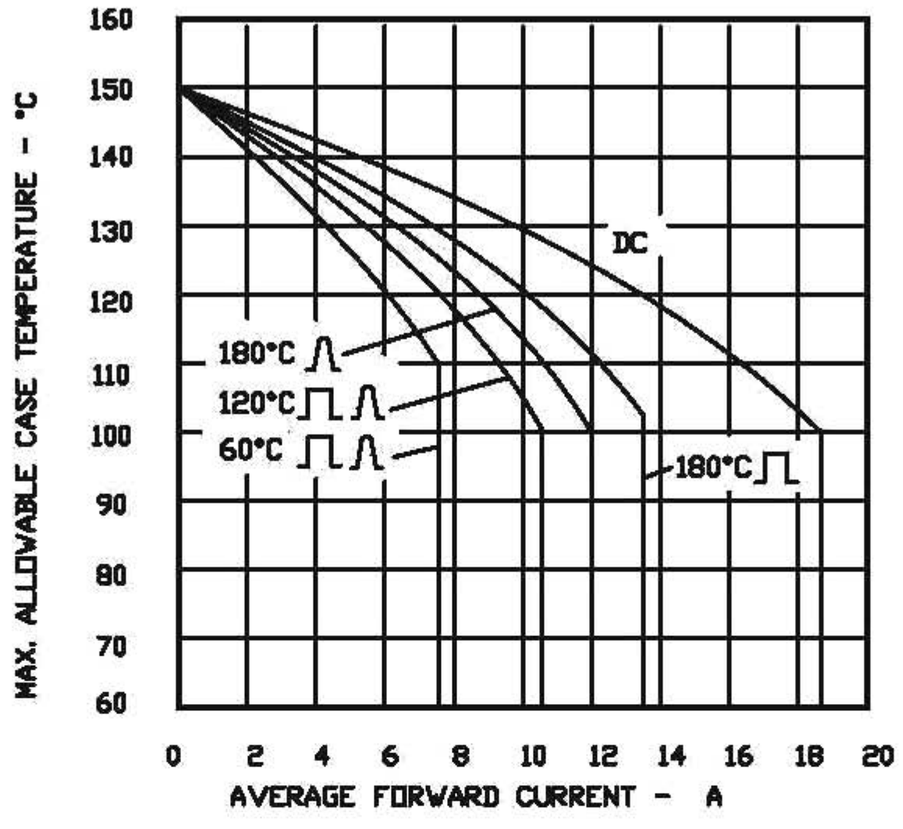
Order Information Table



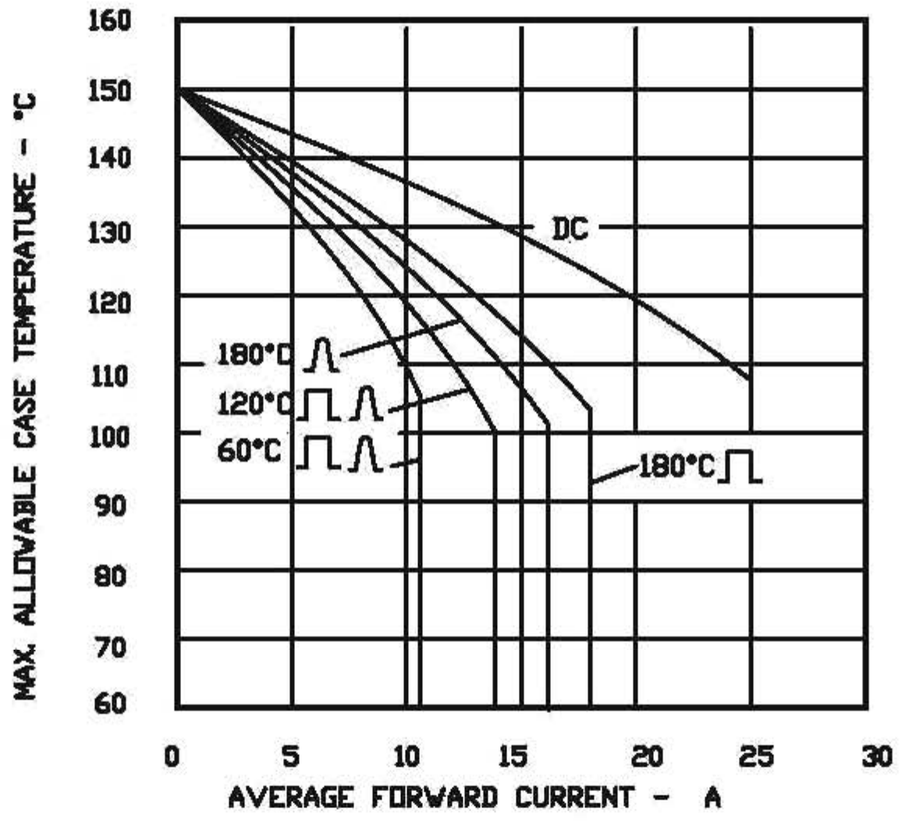
1	-	12/16F -	Essential Part No.
2	-	M -	Stud with 6mm Metric threading
		None -	Stud with 10-32 UNF threading
3	-	None-	Normal polarity
		R -	Reverse polarity
4	-	Voltage Rating (See table)	

SILICON RECTIFIER

12/16 FL...SERIES



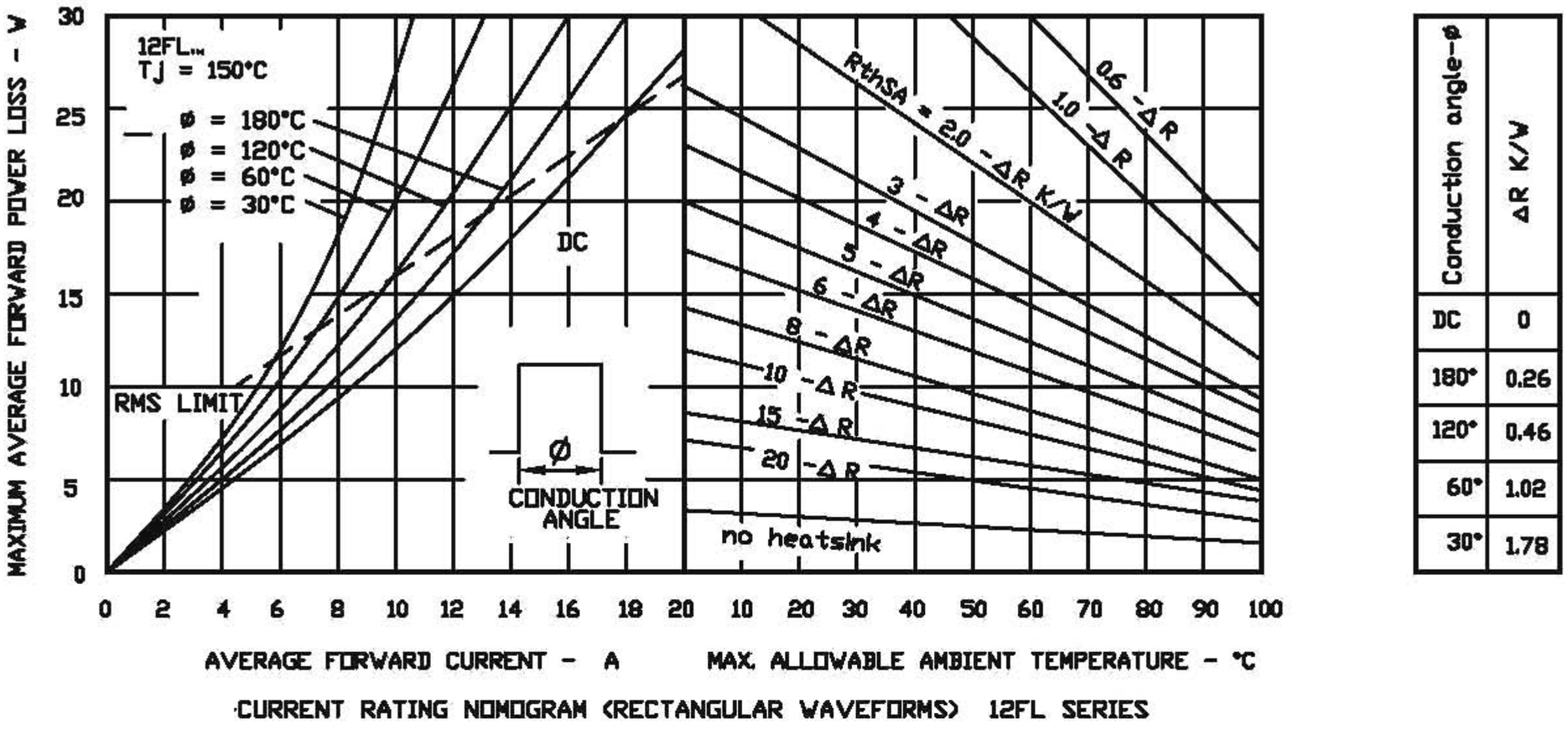
AVERAGE FORWARD CURRENT Vs MAX.
ALLOWABLE CASE TEMPERATURE, 12FL SERIES



AVERAGE FORWARD CURRENT Vs MAX.
ALLOWABLE CASE TEMPERATURE, 16FL SERIES

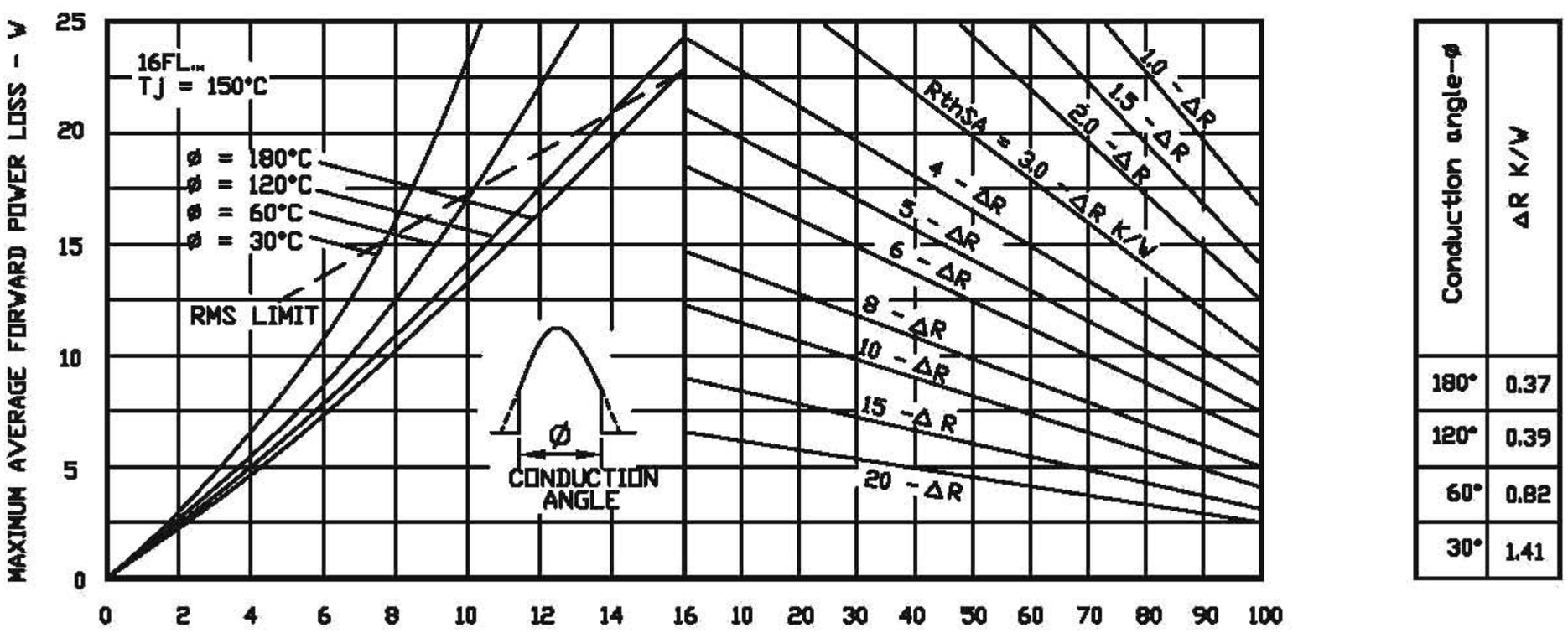
SILICON RECTIFIER

12/16 FL...SERIES



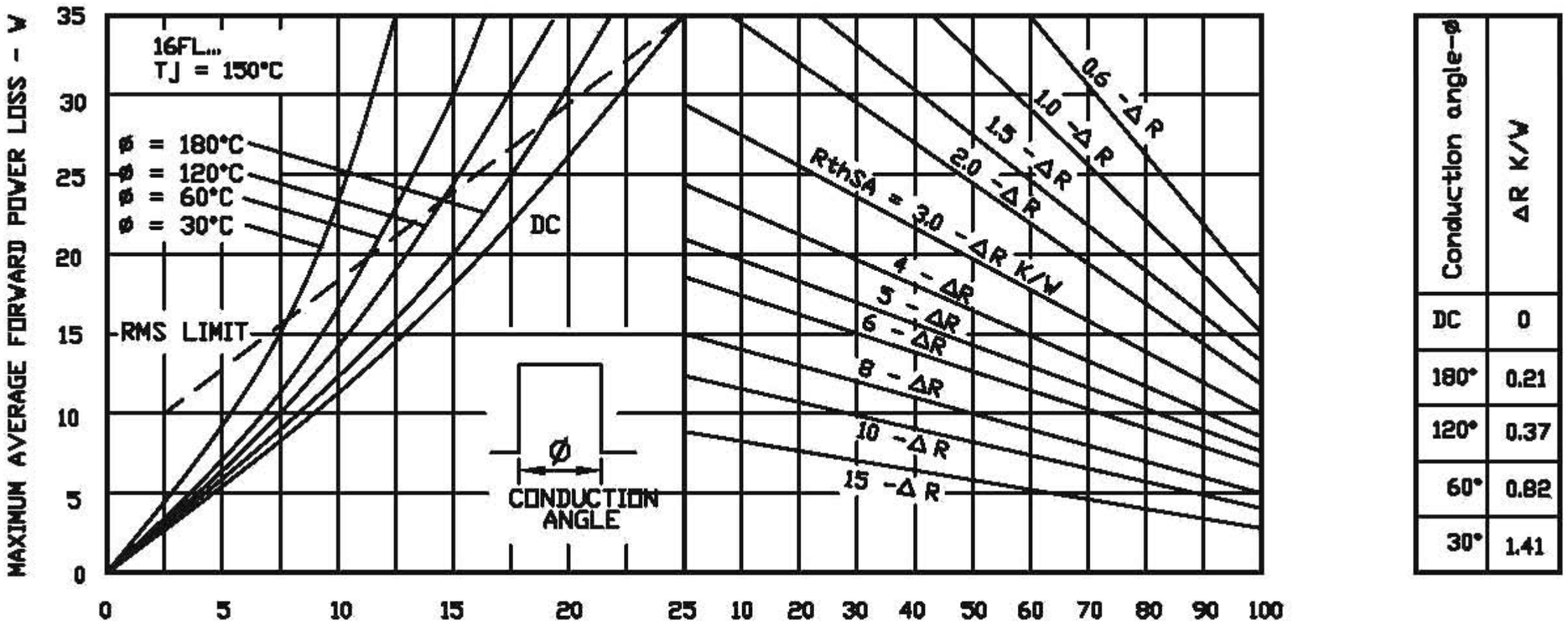
CURRENT RATING NOMOGRAM (RECTANGULAR WAVEFORMS) 12FL SERIES

Conduction angle-ø	ΔR K/W
DC	0
180°	0.26
120°	0.46
60°	1.02
30°	1.78



CURRENT RATING NOMOGRAM (SINUSOIDAL WAVEFORMS) 16FL SERIES

Conduction angle-ø	ΔR K/W
180°	0.37
120°	0.39
60°	0.82
30°	1.41

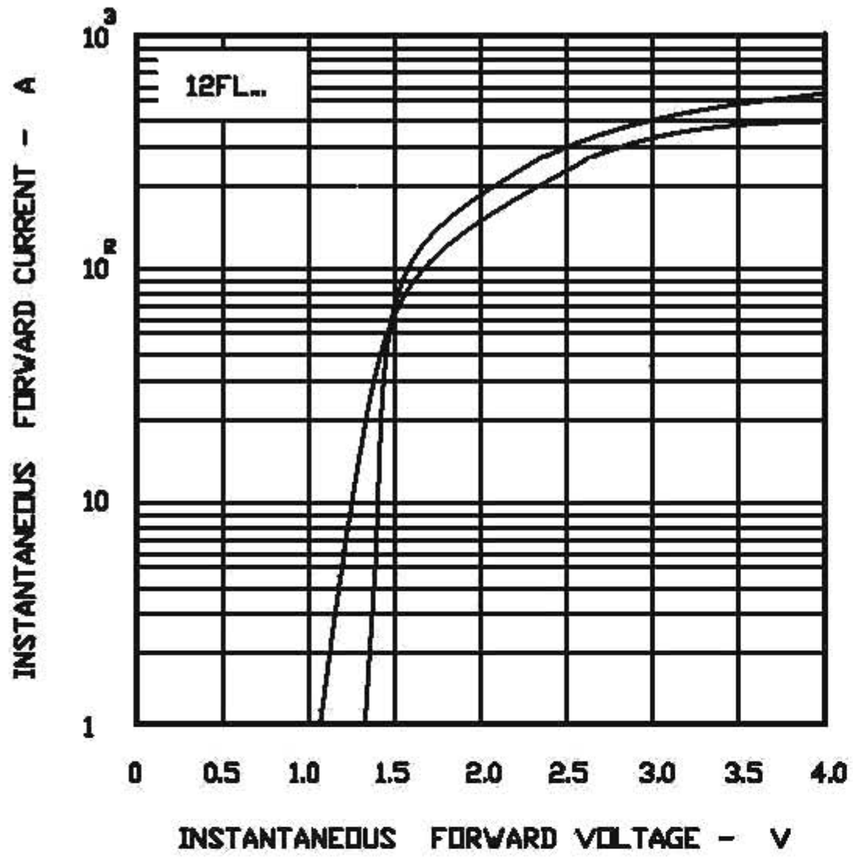


CURRENT RATING NOMOGRAM (RECTANGULAR WAVEFORMS) 16FL SERIES

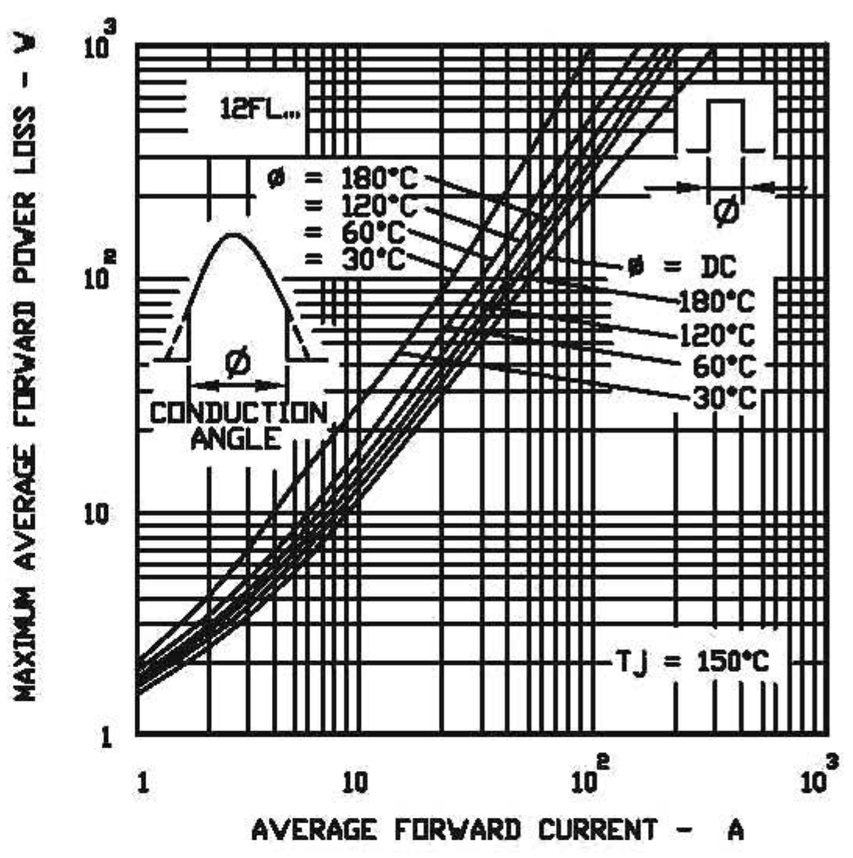
Conduction angle-ø	ΔR K/W
DC	0
180°	0.21
120°	0.37
60°	0.82
30°	1.41

SILICON RECTIFIER

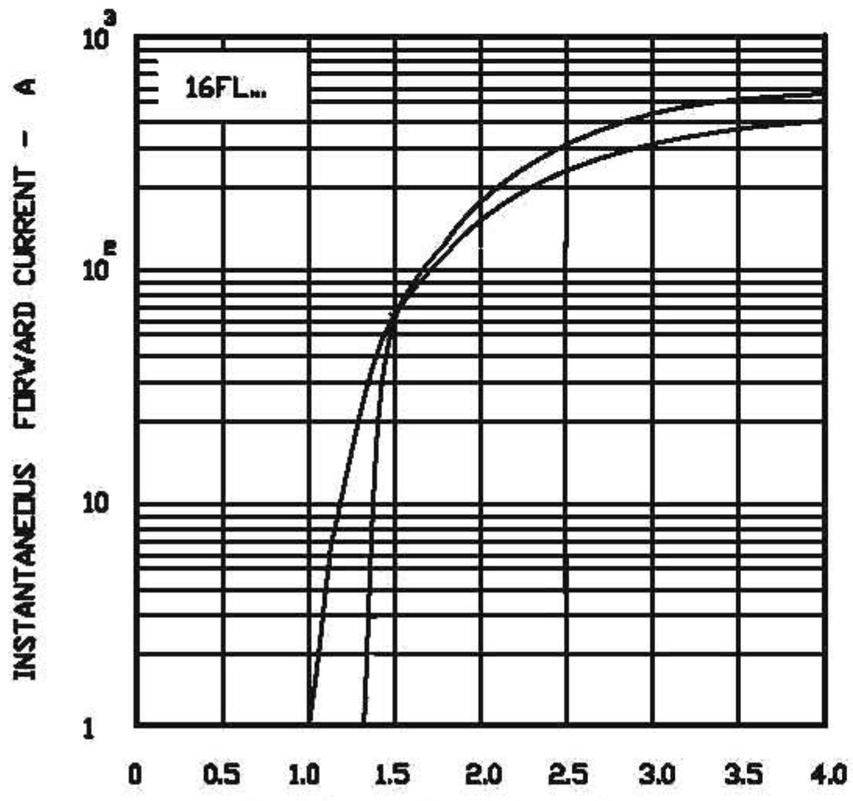
12/16 FL...SERIES



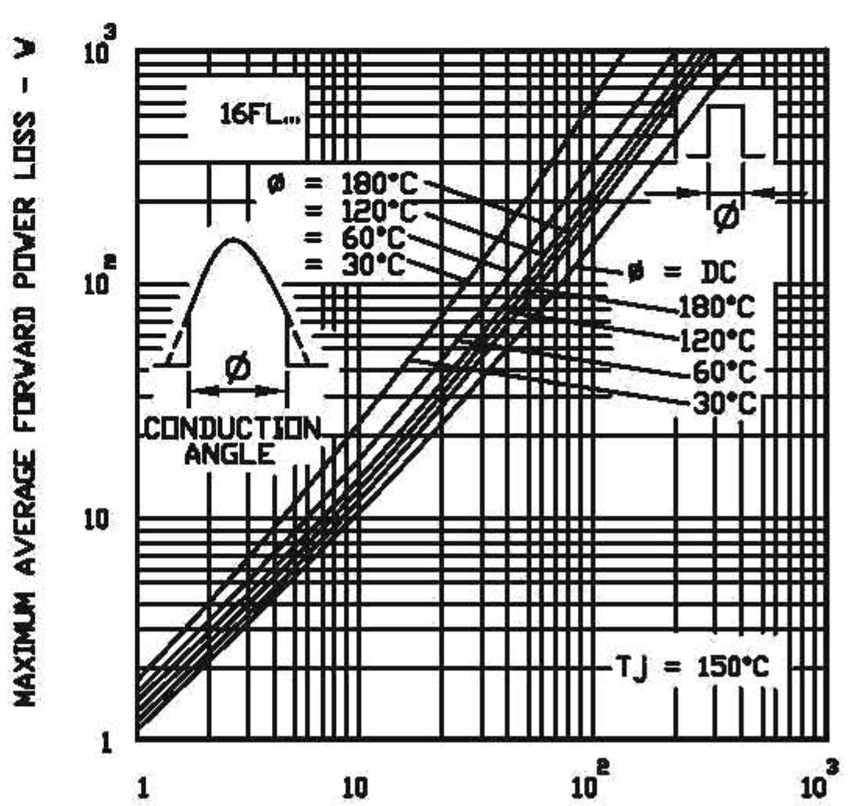
MAX. FORWARD VOLTAGE Vs FORWARD CURRENT, 12FL SERIES



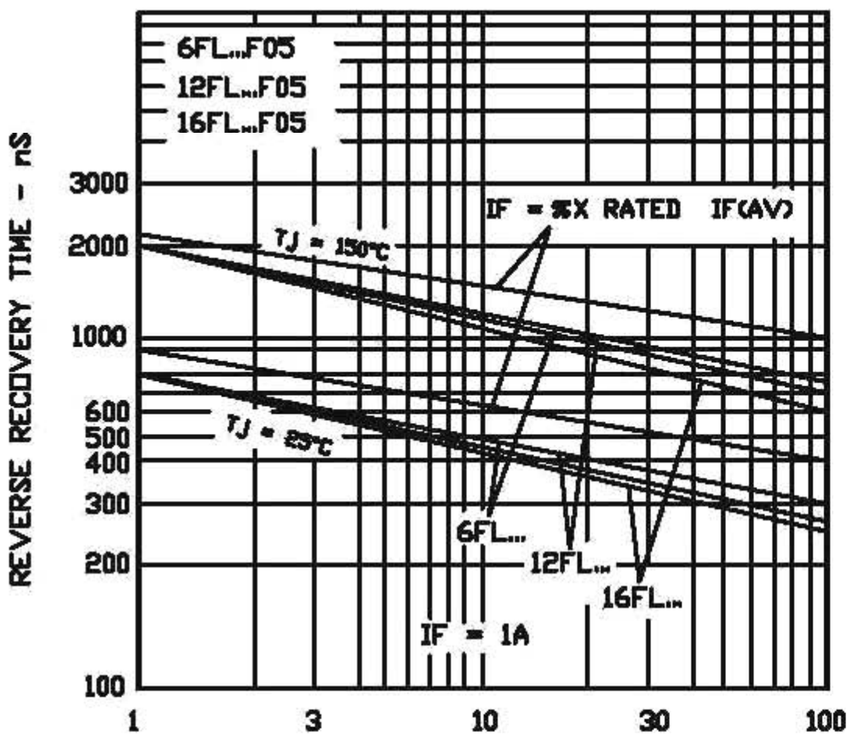
MAX. HIGH LEVEL FORWARD POWER LOSS Vs. AVERAGE FORWARD CURRENT, 12FL SERIES



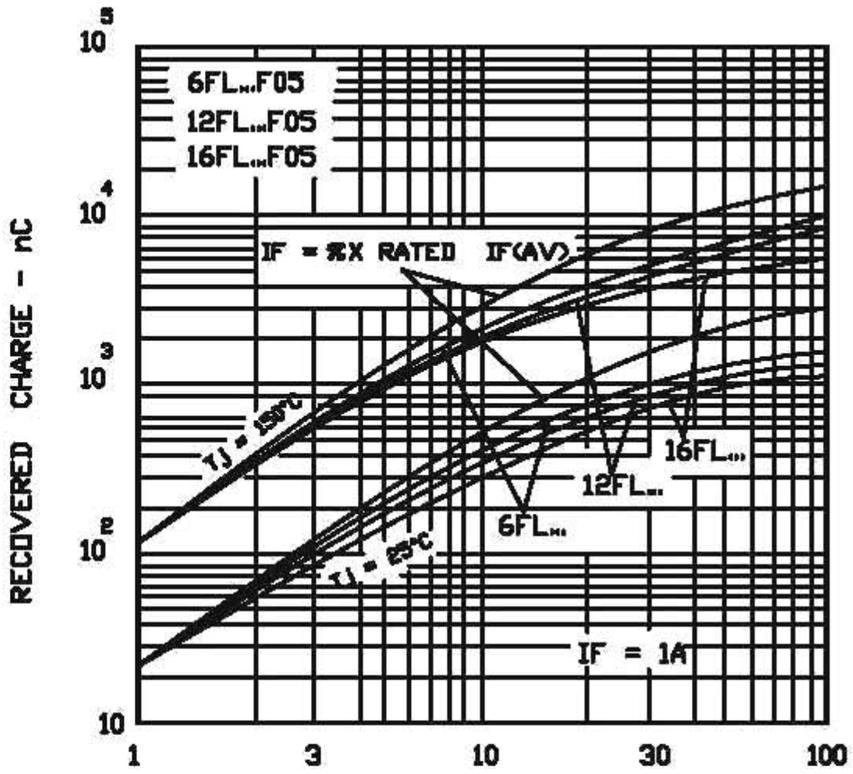
MAX. FORWARD VOLTAGE Vs FORWARD CURRENT, 16FL SERIES



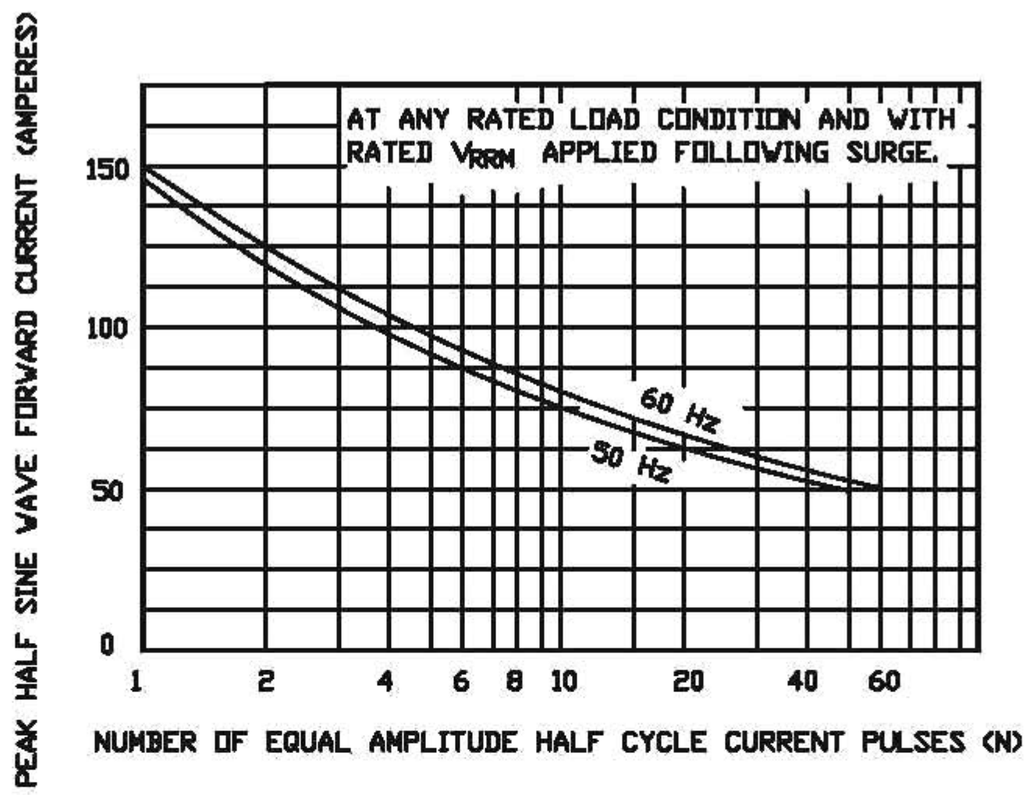
MAX. HIGH LEVEL FORWARD POWER LOSS Vs . AVERAGE FORWARD CURRENT, 16FL SERIES



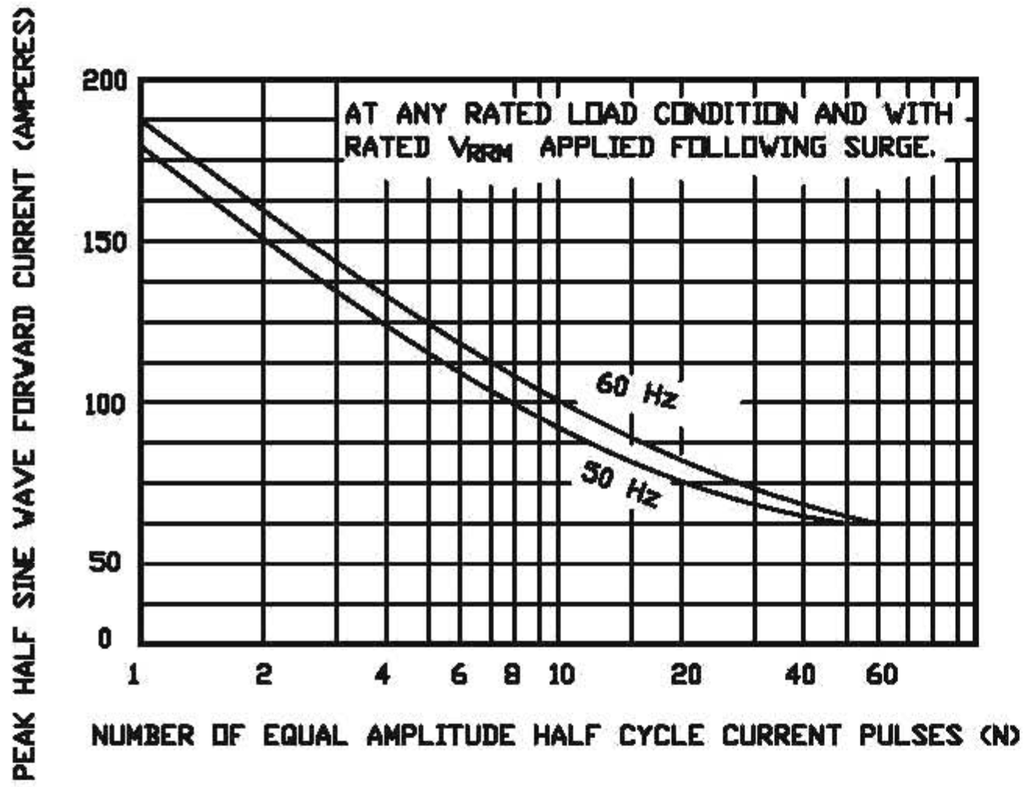
MAX. REVERSE RECOVERY TIME Vs. RATE OF FALL OF FORWARD CURRENT, ALL SERIES...F05



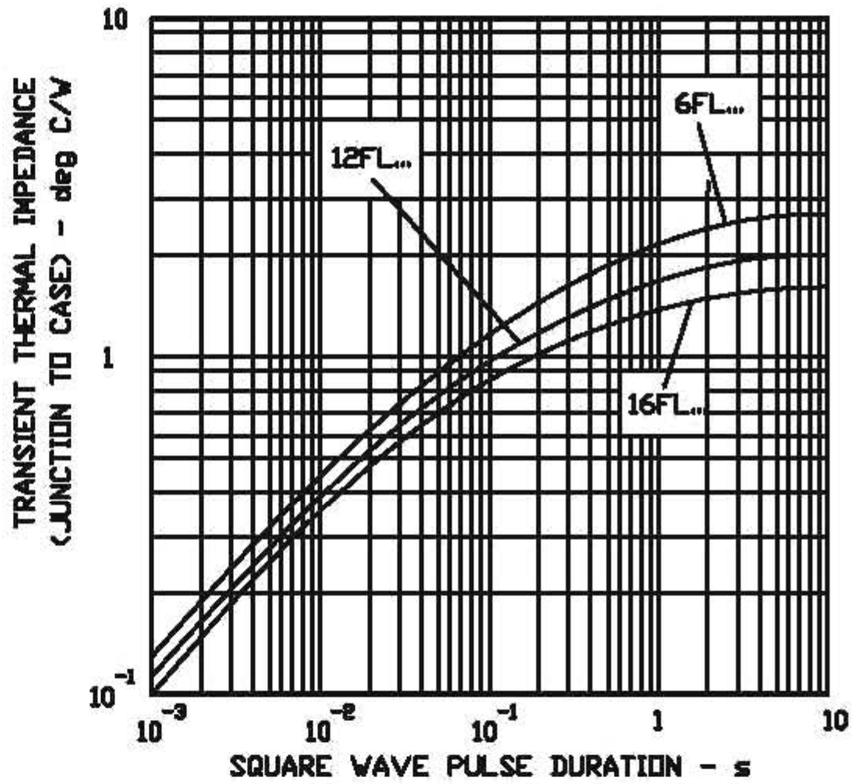
MAX. RECOVERED CHARGE Vs. RATE OF FALL OF FORWARD CURRENT, ALL SERIES..F05



MAX. NON-REPETITIVE SURGE CURRENT Vs
NUMBER OF CURRENT PULSES, 12FL SERIES



MAX. NON-REPETITIVE SURGE CURRENT Vs
NUMBER OF CURRENT PULSES, 16FL SERIES



TRANSIENT THERMAL IMPEDANCE,
JUNCTION-TO-CASE Vs. PULSE DURATION, ALL SERIES