

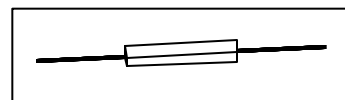
TECHNICAL DATA
DATA SHEET 540, REV. -

HIGH VOLTAGE, HIGH DENSITY, FAST RECOVERY LEADED SILICON RECTIFIER ASSEMBLY

FEATURES:

- Low reverse recovery time
- Low forward voltage drop
- High thermal shock resistance
- Corona free construction
- Low distributed capacitance

- $V_R = 2500V - 12500V$
- $I_F = 0.5A$
- $I_R = 1.0mA$
- $t_{rr} = 150ns$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT $I_{F(AV)}$		REPETITIVE SURGE CURRENT I_{FRM}	1 CYCLE SURGE CURRENT $t_p = 8.3ms$ (sine) I_{FSM}		I_t^2 $t_p = 8.3ms$ @ 25°C	PACKAGE LENGTH
		Amps		Amps	Amps			
	Volts	55°C	100°C	25°C	25°C	100°C	A ² S	Inches
SCF2500	2500							1.145
SCF5000	5000							2.020
SCF7500	7500	0.5	0.3	15	25	12.5	2.6	2.770
SCF10000	10000							3.520
SCF12500	12500							4.270

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μ Amps				
	25°C	100°C	V	A	nsec
SCF2500	1.0	25	3.45	0.5	150
SCF5000			5.75		
SCF7500			9.20		
SCF10000			11.5		
SCF12500			15.0		

Notes:

- Operating temperature range -55 to +150°C.
- Storage temperature range -55 to +150°C.

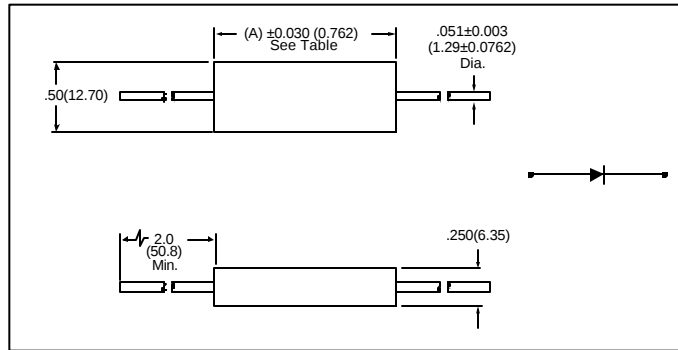
① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA

DATA SHEET 540, REV. -

Mechanical Dimensions in: mm / inches



CHARACTERISTICS CURVES

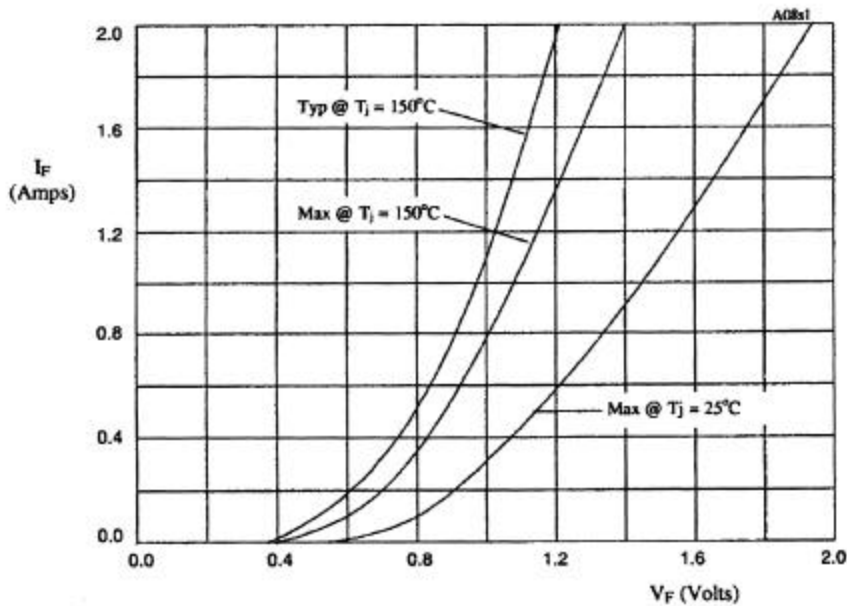


Fig 1. Forward voltage drop as a function of forward current.

TABLE 1

DEVICE	X-AXIS
SCF2500	x3
SCF5000	x5
SCF7500	x8
SCF10000	x10
SCF12500	x13

SENSITRON

TECHNICAL DATA

DATA SHEET 540, REV. -

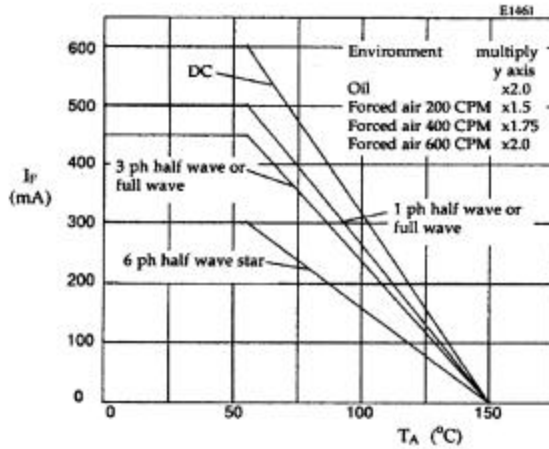


Figure 2. Maximum average forward currents against ambient temperature.

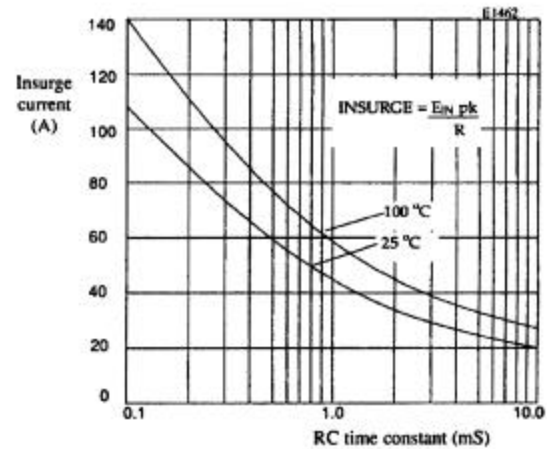


Figure 3. Maximum ratings for capacitive loads. Insurge current versus RC time constant

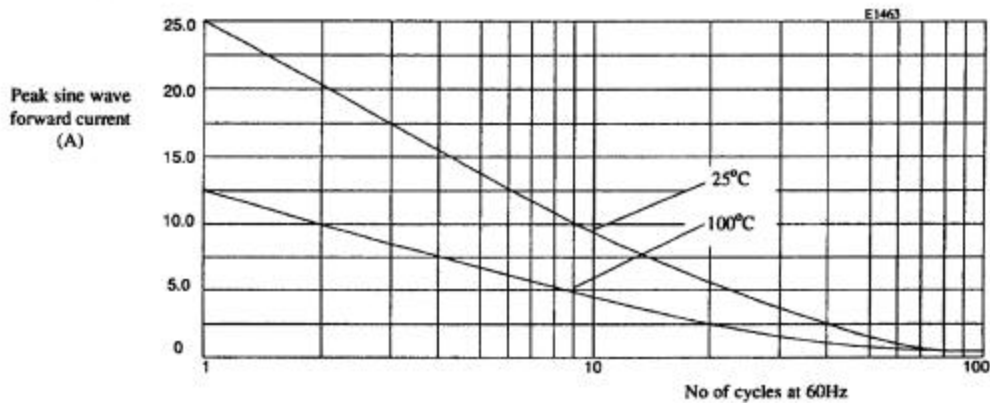


Figure 4. Non repetitive forward current surge curves.

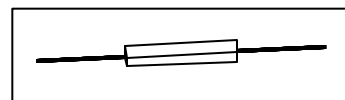
TECHNICAL DATA
DATA SHEET 541, REV. -

HIGH VOLTAGE, HIGH DENSITY, FAST RECOVERY LEADED SILICON RECTIFIER ASSEMBLY

FEATURES:

- Low reverse recovery time
- Low reverse leakage current
- High thermal shock resistance
- Corona free construction
- Low distributed capacitance

- $V_R = 2000V - 12000V$
- $I_F = 1.5A$
- $I_R = 5.0mA$
- $t_{rr} = 150ns$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT $I_{F(AV)}$		REPETITIVE SURGE CURRENT I_{FRM}	1 CYCLE SURGE CURRENT $t_p = 8.3ms$ (sine) I_{FSM}		I^2_t $t_p = 8.3ms$ @ 25°C	PACKAGE LENGTH
		Amps		Amps	Amps			
		Volts	55°C	100°C	25°C	25°C		
SCFS2000	2000						A ² S	Inches
SCFS4000	4000							
SCFS6000	6000	1.5	1.0	10	150	75	93	
SCFS8000	8000							
SCFS10000	10000							
SCFS12000	12000							

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μ Amps				
	25°C	100°C	V	A	nsec
SCFS2000	5.0	25	5.4	3.0	150
SCFS4000			9.0		
SCFS6000			12.6		
SCFS8000			16.2		
SCFS10000			19.8		
SCFS12000			23.4		

Notes:

- Operating temperature range -55 to +150°C.
- Storage temperature range -55 to +150°C.
- ① Measured on discrete devices prior to assembly.

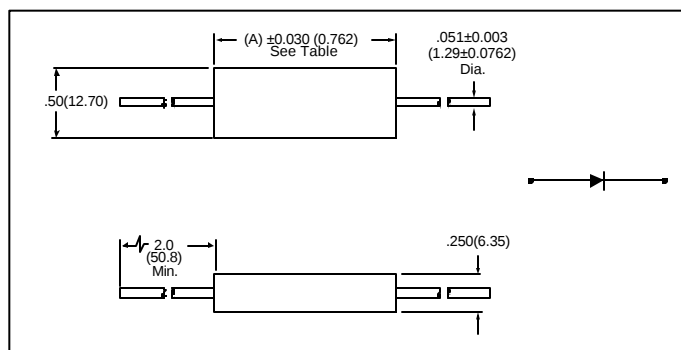
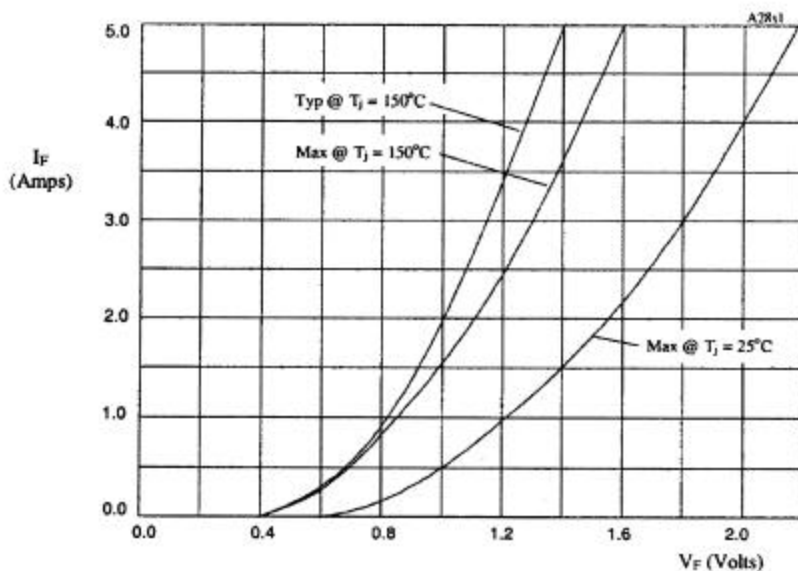
Mechanical Dimensions in: mm / inches**CHARACTERISTICS CURVES**

Fig 1. Forward voltage drop as a function of forward current.

TABLE I

DEVICE	X-AXIS
SCFS2000	x3
SCFS4000	x5
SCFS6000	x7
SCFS8000	x9
SCFS10000	x11
SCFS12000	x13

SENSITRON

TECHNICAL DATA

DATA SHEET 541, REV. -

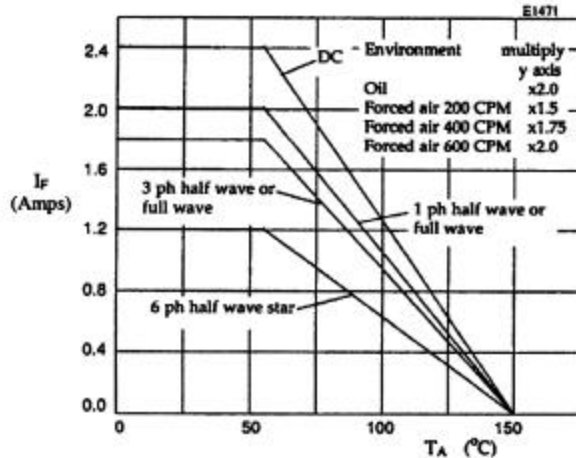


Figure 2. Maximum average forward currents against ambient temperature.

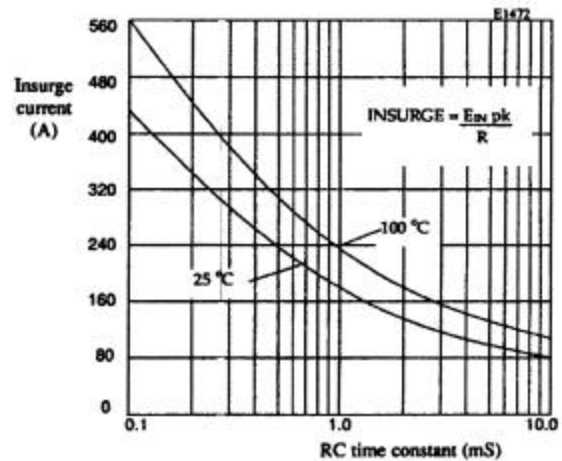


Figure 3. Maximum ratings for capacitive loads. Insurge current versus RC time constant

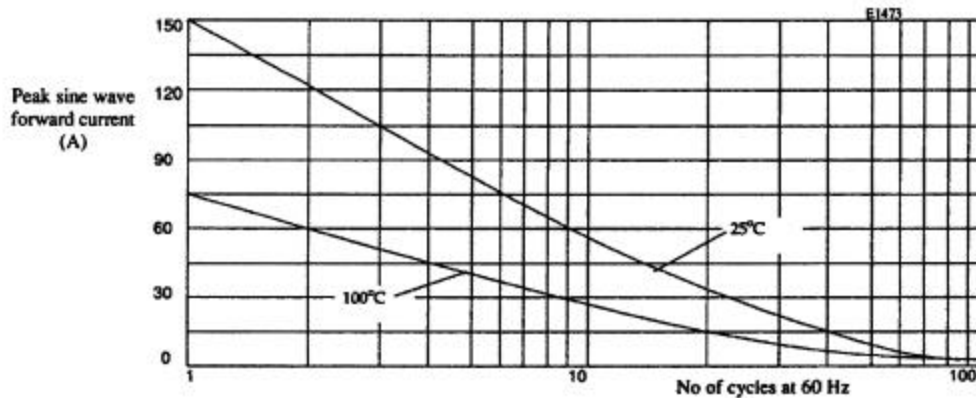


Figure 4. Non repetitive forward current surge curves for 25°C and 100°C

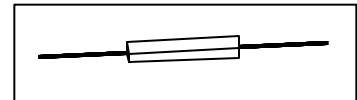
TECHNICAL DATA
DATA SHEET 542, REV. -

HIGH VOLTAGE, HIGH DENSITY, LEADED SILICON RECTIFIER ASSEMBLY

FEATURES:

- Low forward voltage drop
- Low reverse leakage current
- High thermal shock resistance
- Corona free construction
- Low distributed capacitance

- $V_R = 5000V - 25000V$
- $I_F = 0.5A$
- $I_R = 1.0mA$
- $I_{FSM} = 50A$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT $I_{F(AV)}$		FORCED AIR @ 600 CFM, 55°C	IN STILL OIL @ 55°C	1 CYCLE SURGE CURRENT I_{FSM} $t_p = 8.3ms$ @ $T_{J\ MAX}$	I^2t $t_p = 8.3ms$ @ $T_{J\ MAX}$	REPETITIVE SURGE CURRENT I_{FRM} @ 25°C	PACKAGE LENGTH
		Amps							
		Volts	55°C						
SCH5000	5000	0.5	0.33	1.0	1.0	50	12	10	1.145
SCH7500	7500								1.645
SCH10000	10000								2.020
SCH12500	12500								2.395
SCH15000	15000								2.770
SCH20000	20000								3.520
SCH25000	25000								4.270

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μAmps				
	25°C	100°C	V	A	μsec
SCH5000	1.0	20	5.0	1.0	5.0
SCH7500			8.0		
SCH10000			10.0		
SCH12500			13.0		
SCH15000			15.0		
SCH20000			20.0		
SCH25000			25.0		

Notes:

- Operating temperature range -55 to +150°C.

- Storage temperature range -55 to +150°C.

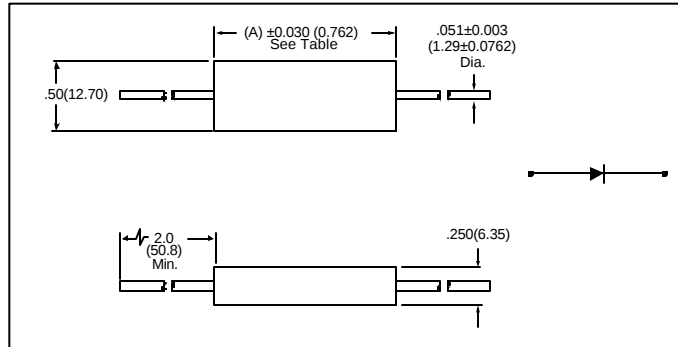
① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA

DATA SHEET 542, REV. -

Mechanical Dimensions in: mm / inches



CHARACTERISTICS CURVES

Operating temperature range -55 °C to +150 °C
Storage temperature range -55 °C to +150 °C

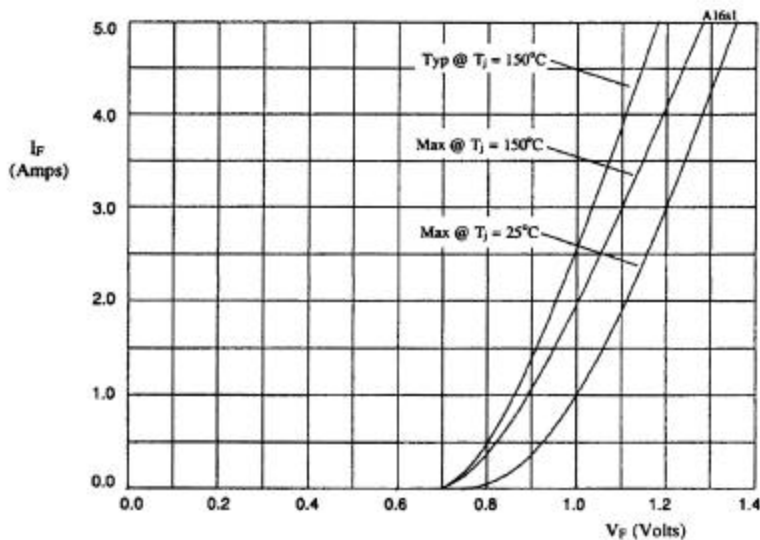


Figure 1. Forward voltage drop as a function of forward current (see Table 1).

TABLE 1

DEVICE	X-AXIS
SCH5000	x5
SCH7500	x8
SCH10000	x10
SCH12500	x13
SCH15000	x15
SCH20000	x20
SCH25000	x25

SENSITRON

TECHNICAL DATA

DATA SHEET 542, REV. -

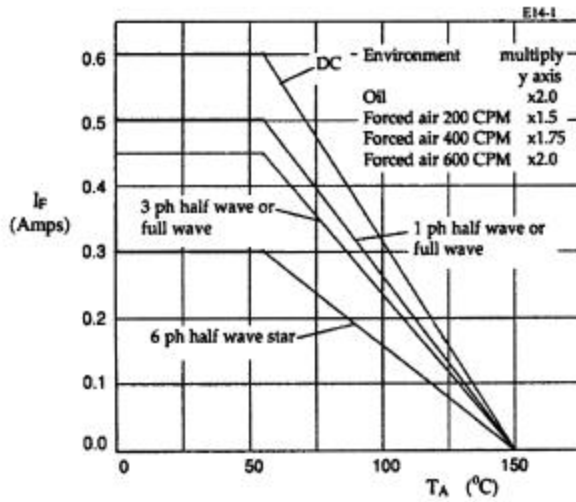


Figure 2. Maximum forward current against ambient temperature.

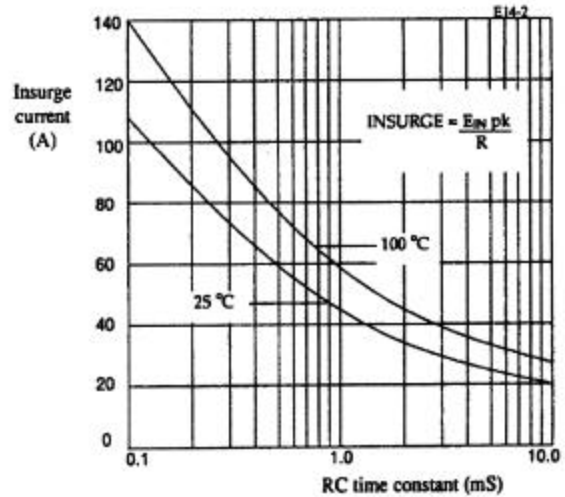


Figure 3. Maximum ratings for capacitive loads. Insurge current versus RC time constant

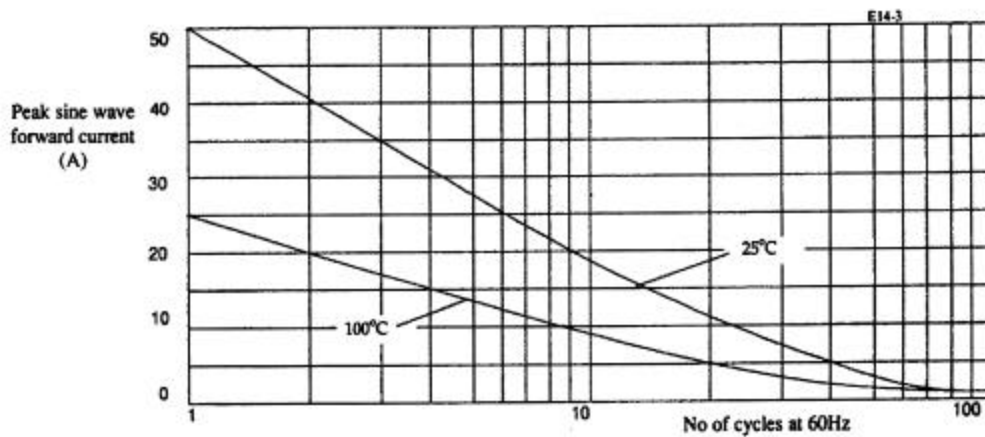


Figure 4. Non repetitive forward current surge curves.

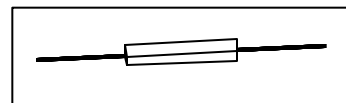
TECHNICAL DATA
DATA SHEET 543, REV. -

**HIGH VOLTAGE, HIGH DENSITY,
STANDARD RECOVERY, LEADED
SILICON RECTIFIER ASSEMBLY**

FEATURES:

- Low forward voltage drop
- Low reverse leakage current
- High thermal shock resistance
- Corona free construction
- Low distributed capacitance

- $V_R = 2500V - 15000V$
- $I_F = 2.0A$
- $I_R = 1.0mA$
- $I_{FSM} = 80A$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT $I_{F(AV)}$		FORCED AIR @ 600 CFM, 55°C	IN STILL OIL @ 55°C	1 CYCLE SURGE CURRENT I_{FSM} $t_p = 8.3ms$ @ $T_J\ MAX$	I^2t $t_p = 8.3ms$ @ $T_J\ MAX$	REPETITIVE SURGE CURRENT I_{FRM} @ 25°C	PACKAGE LENGTH
		Amps							
		Volts	55°C						
SCHS2500	2500	2.0	1.2	2.0	4.0	80	26	31	1.53
SCHS5000	5000								2.53
SCHS7500	7500								3.53
SCHS10000	10000								4.53
SCHS12500	12500								5.53
SCHS15000	15000								6.53

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μ Amps				
	25°C	100°C	V	A	μ sec
SCHS2500	1.0	10	3.45	3.0	2.5
SCHS5000			5.75		
SCHS7500			9.20		
SCHS10000			11.50		
SCHS12500			14.95		
SCHS15000			18.40		

Notes:

- Operating temperature range -55 to +150°C.

- Storage temperature range -55 to +150°C.

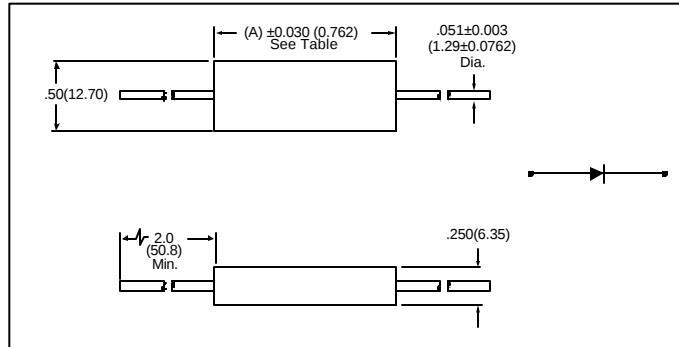
① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA

DATA SHEET 543, REV. -

Mechanical Dimensions in: mm / inches



CHARACTERISTICS CURVES

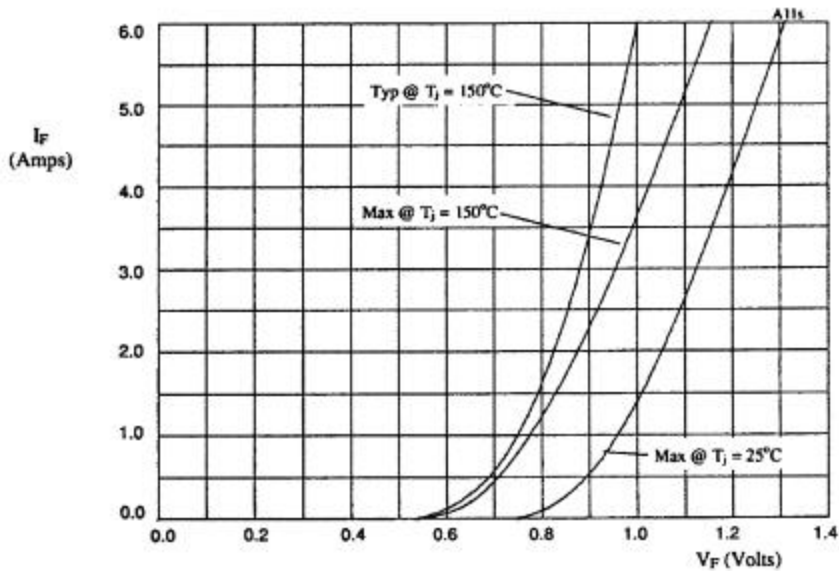


Figure 1. Forward voltage drop as a function of forward current.

TABLE I

DEVICE	X-AXIS
SCHS2500	x3
SCHS5000	x6
SCHS7500	x8
SCHS10000	x10
SCHS12500	x13
SCHS15000	x16

SENSITRON

TECHNICAL DATA

DATA SHEET 543, REV. -

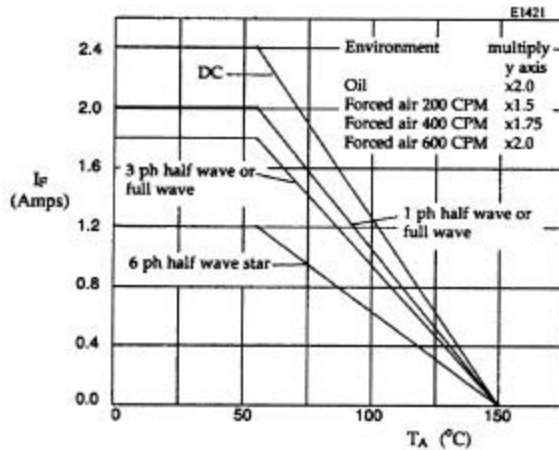


Figure 2. Maximum forward current against ambient temperature.

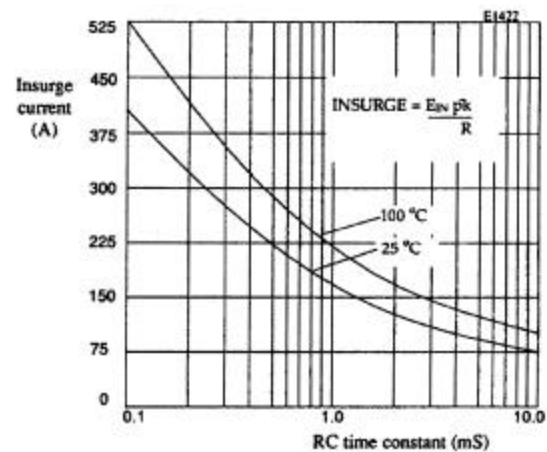


Figure 3. Maximum ratings for capacitive loads. Insurge current versus RC time constant

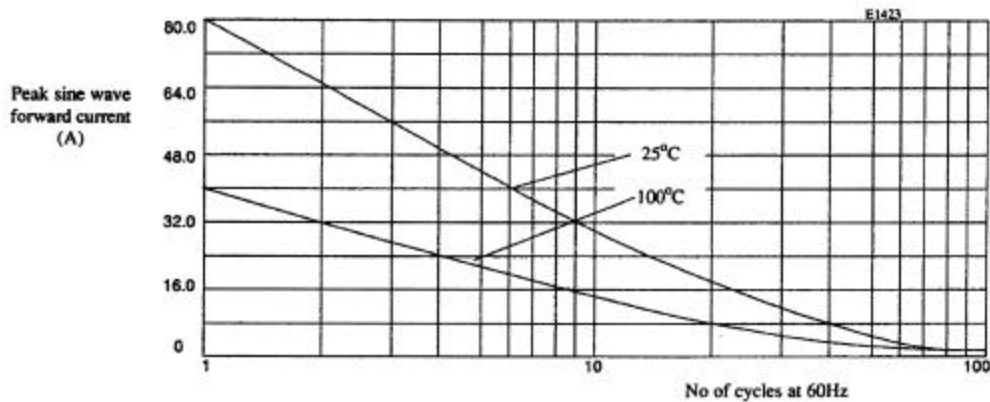


Figure 4. Non repetitive forward current surge curves.

TECHNICAL DATA
DATA SHEET 544, REV. -

HIGH VOLTAGE, HIGH DENSITY, FAST RECOVERY MODULAR RECTIFIER ASSEMBLY

FEATURES:

- Low reverse recovery time
- Low reverse leakage currents
- High thermal shock resistance
- Modular construction
- Low distributed capacitance
- $V_R = 2500V - 7500V$
- $I_F = 0.8 - 2.4A$
- $I_{FSM} = \text{up to } 130A$
- $t_{rr} = 150ns$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT (AIR)		STUD TO HEAT-SINK @ 25°C	IN STILL OIL @ 55°C	1 CYCLE SURGE CURREN T I _{FSM} t _p = 8.3ms @ T _J MAX	P _t t _p = 8.3ms	REPETITIVE SURGE CURRENT I _{FRM} @ 25°C
		I _{F(AV)}						
		Amps						
	Volts	25°C	100°C	Amps	Amps	Amps	A°S	Amps
S2HVM2.5F	2500	2.0	0.8	2.0	2.0	32	4.25	11
S2HVM5F	5000	1.2	0.5	2.0	2.0	32	4.25	11
S2HVM7.5	7500	0.8	0.3	1.5	2.0	32	4.25	11
S3HVM2.5F	2500	2.4	1.0	3.0	3.0	70	20	20
S3HVM5F	5000	1.2	0.5	2.5	3.0	70	20	20
S6HVM2.5F	2500	2.4	1.0	5.0	6.0	130	70	35

MAXIMUM THERMAL IMPEDANCES

Junction to Ambient	$R_{\theta JC} < 12^\circ C/W$
Junction to Stud	$R_{\theta JS} < 6^\circ C/W$
Junction to Oil	$R_{\theta JO} < 4.5^\circ C/W$

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μ Amps				
	25°C	100°C	V	A	nsec
S2HVM2.5F	1.0	25.0	6.0	@ 1.0	150
S2HVM5F	1.0	25.0	12	@ 1.0	
S2HVM7.5F	1.0	25.0	18	@ 1.0	
S3HVM2.5F	5.0	25.0	6.0	@ 3.0	
S3HVM5F	5.0	25.0	12	@ 3.0	
S6HVM2.5F	10.0	50.0	6.0	@ 6.0	

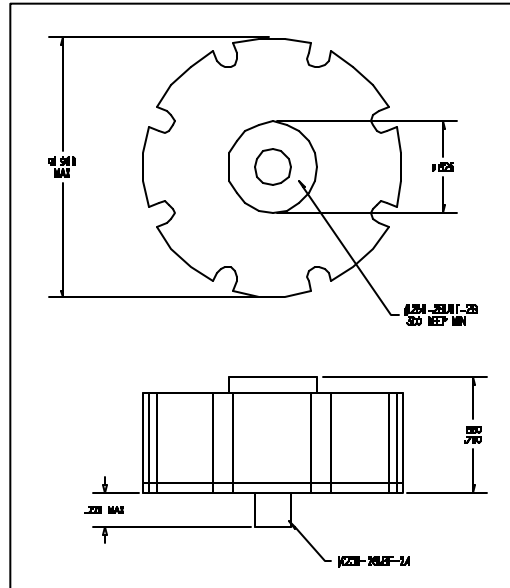
Notes:

- Operating temperature range -55 to +150°C.
- Storage temperature range -55 to +150°C.
- (Temperature range is given for Hermetic Diodes)
- ① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA
DATA SHEET 544, REV. -

Mechanical Dimensions in: mm / inches



CHARACTERISTICS CURVES

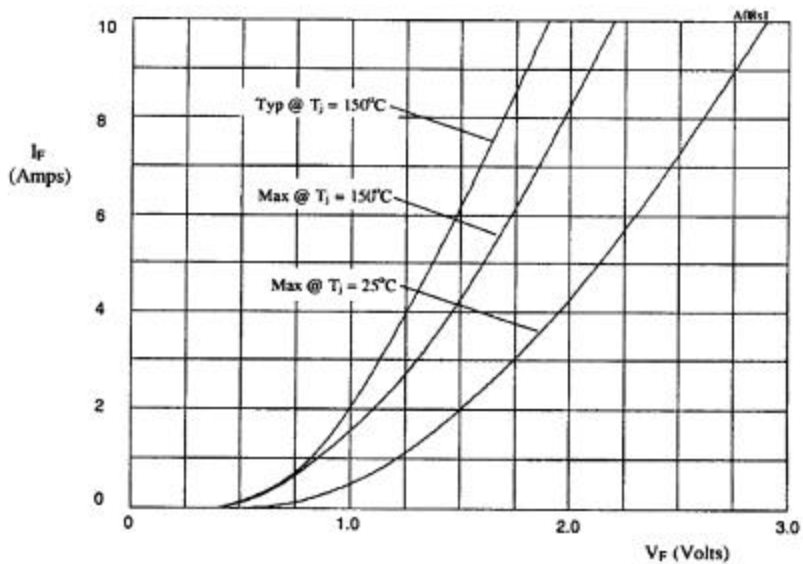


Figure 1. Forward voltage drop as a function of forward current for S2HVM**F series (see Table 1).

TABLE 1

DEVICE	X-AXIS
S2HVM2.5F	x3
S2HVM5F	x6
S2HVM7.5F	x8

SENSITRON

TECHNICAL DATA

DATA SHEET 544, REV. -

S2HVM2.5F S3HVM2.5F
S2HVM5F S3HVM5F
S2HVM7.5F S6HVM2.5F

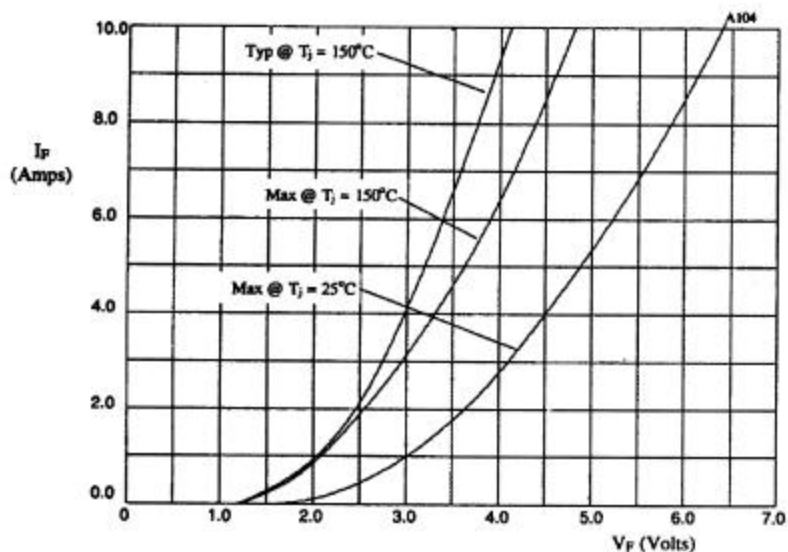


Figure 2. Forward voltage drop as a function of forward current for S3HVM**F series (see Table 2).

TABLE 2

DEVICE	X-AXIS
S3HVM2.5F	x1
S3HVM5F	x2

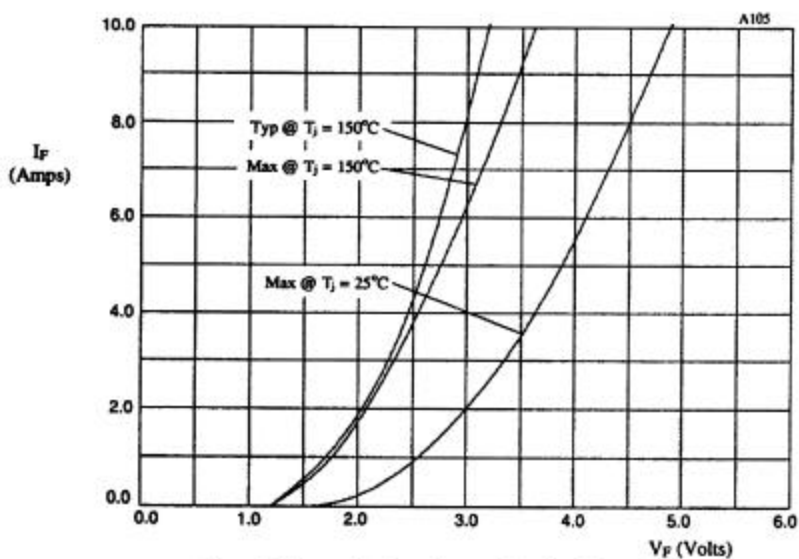


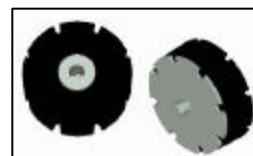
Figure 3. Forward voltage drop as a function of forward current for S6HVM2.5F.

TECHNICAL DATA
DATA SHEET 545, REV. -

HIGH VOLTAGE, HIGH DENSITY, FAST RECOVERY MODULAR RECTIFIER ASSEMBLY

FEATURES:

- Up to 15kV reverse voltage
- Low reverse leakage current
- High thermal shock resistance
- Modular construction
- Provides design versatility
- $V_R = 2500V - 15000V$
- $I_F = 500mA$ (air)
- $I_R = 1.0mA$
- $I_{FSM} = 20A$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT (AIR) $I_{F(AV)}$		STUD TO HEAT- SINK @ 25°C	IN STILL OIL @ 55°C	1 CYCLE SURGE CURRENT I_{SM} $t_p = 8.3ms$ I_{SM}		REPETITIVE SURGE CURRENT I_{FRM} @ 25°C	I^2t $t_p = 8.3ms$ @ 25°C
		Amps				Amps			
		Volts	25°C			100°C	Amps		
SHVM2.5 SHVM5 SHVM7.5 SHVM10 SHVM12.5 SHVM15	2500 5000 7500 10000 12500 15000	0.5	0.2	0.5	0.5	20.0	8.0	8.0	1.67

MAXIMUM THERMAL IMPEDANCES

Junction to Ambient	$R_{\theta JC} < 12^\circ C/W$
Junction to Stud	$R_{\theta JS} < 6^\circ C/W$
Junction to Oil	$R_{\theta JO} < 4.5^\circ C/W$

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μ Amps				
	25°C	100°C	V	A	μ sec
SHVM2.5 SHVM5 SHVM7.5 SHVM10 SHVM12.5 SHVM15	1.0	50	7.0 14.0 21.0 28.0 35.0 42.0	0.8	2.0

Notes:

- Operating temperature range -55 to $+150^\circ C$.
- Storage temperature range -55 to $+150^\circ C$.
- (Temperature range is given for Hermetic Diodes)
- ① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA

DATA SHEET 545, REV. -

Mechanical Dimensions in: mm / inches

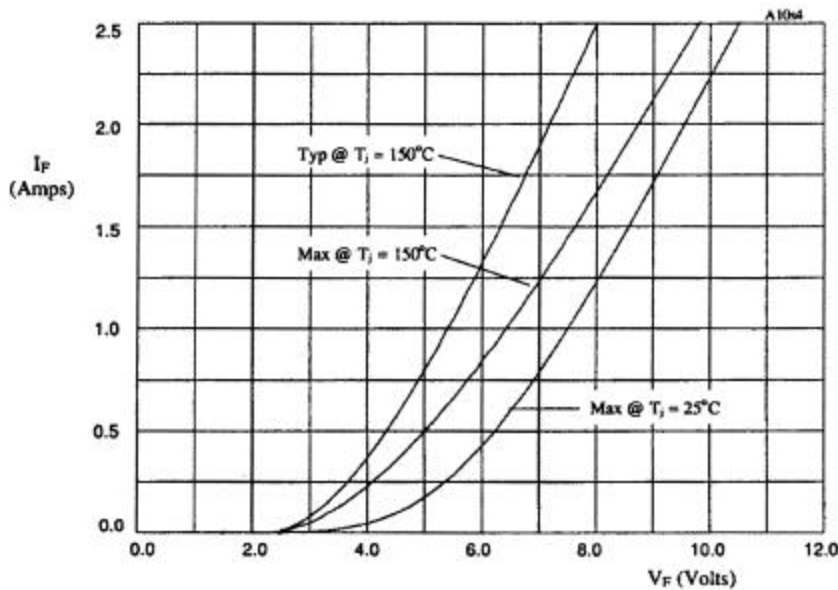
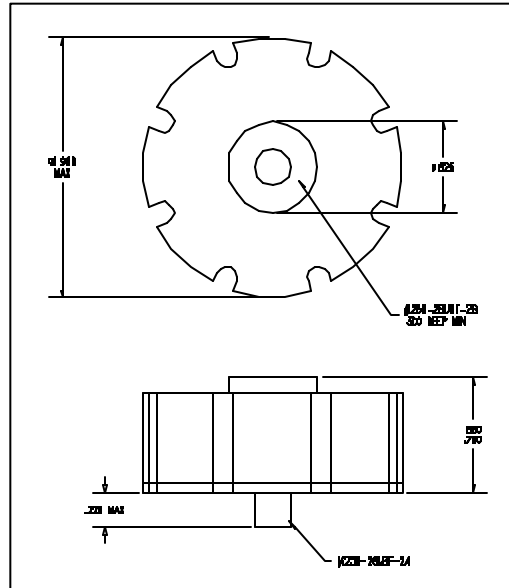


Figure 1. Forward voltage drop as a function of forward current for use with table 1.

TABLE 1

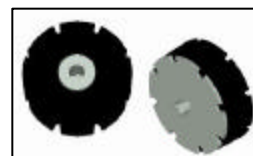
DEVICE	X-axis
SHVM2.5	x1
SHVM5	x2
SHVM7.5	x3
SHVM10	x4
SHVM12.5	x5
SHVM15	x6

TECHNICAL DATA
DATA SHEET 546, REV. -

HIGH VOLTAGE, HIGH DENSITY, FAST RECOVERY MODULAR RECTIFIER ASSEMBLY

FEATURES:

- Up to 15kV reverse voltage
- Low reverse leakage current
- High thermal shock resistance
- Modular construction
- Provides design versatility
- $V_R = 2500V - 15000V$
- $I_F = 0.8 - 2.0A$ (air)
- $I_R = 1.0mA$
- $I_{FSM} = 50A$



Absolute Maximum Ratings

TYPE NUMBER	PEAK INVERSE VOLTAGE (PIV)	MAX. AVG. DC OUTPUT CURRENT (AIR) $I_{F(AV)}$		STUD TO HEAT- SINK @ 25°C	IN STILL OIL @ 55°C	1 CYCLE SURGE CURRENT I_{SM} $t_p = 8.3ms$		REPETITIVE SURGE CURRENT I_{FRM} @ 25°C	I^2t $t_p = 8.3ms$ @ 25°C
		Amps				Amps			
		Volts	25°C			100°C	Amps		
S2HVM2.5	2500	2.0	0.8	2.0	2.0	50.0	20	12.0	10.0
S2HVM5	5000	2.0	0.8	2.0					
S2HVM7.5	7500	2.0	0.8	2.0					
S2HVM10	10000	1.2	0.5	2.0					
S2HVM12.5	12500	1.0	0.4	2.0					
S2HVM15	15000	0.8	0.3	1.5					

MAXIMUM THERMAL IMPEDANCES

Junction to Ambient	$R_{\theta JC} < 12^\circ C/W$
Junction to Stud	$R_{\theta JS} < 6^\circ C/W$
Junction to Oil	$R_{\theta JO} < 4.5^\circ C/W$

Electrical Characteristics

TYPE NUMBER	MAXIMUM REVERSE CURRENT @ PIV I_R		MAXIMUM PEAK FORWARD VOLTAGE V_F @ I_F @ 25°C		MAXIMUM REVERSE RECOVERY TIME ① t_{rr} @ 25°C
	μAmps				
	25°C	100°C	V	A	μsec
S2HVM2.5			3.3		
S2HVM5			5.5		
S2HVM7.5	1.0	20	8.8	2.0	2.5
S2HVM10			11.1		
S2HVM12.5			14.4		
S2HVM15			16.6		

Notes:

- Operating temperature range -55 to +150°C.
- Storage temperature range -55 to +150°C.
- (Temperature range is given for Hermetic Diodes)
- ① Measured on discrete devices prior to assembly.

SENSITRON

TECHNICAL DATA

DATA SHEET 546, REV. -

Mechanical Dimensions in: mm / inches

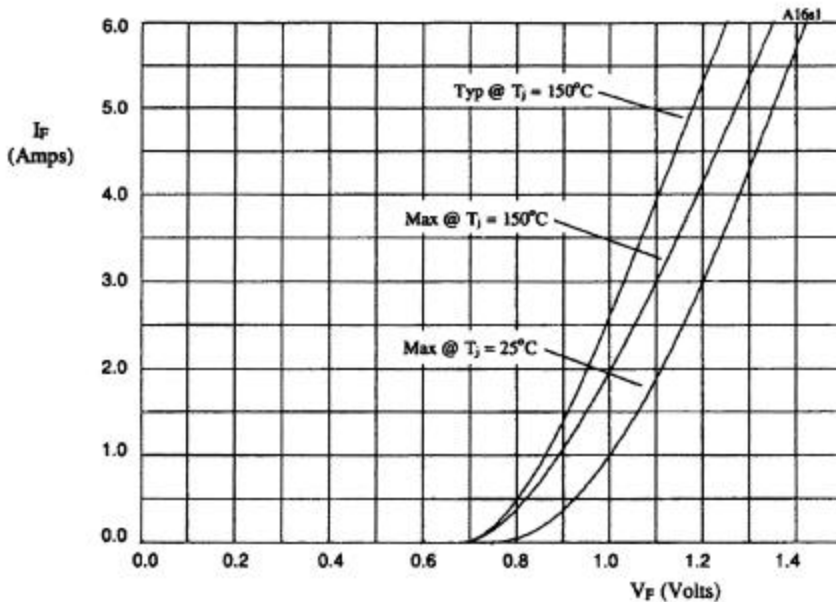
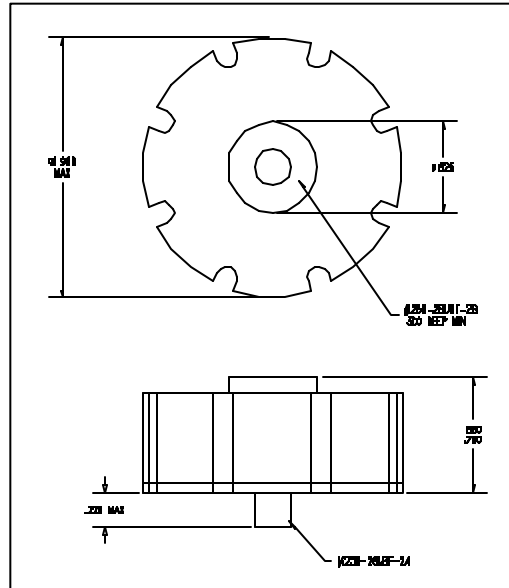


Figure 1. Forward voltage drop as a function of forward current for use with table 1.

TABLE 1

DEVICE	X-axis
S2HVM2.5	x3
S2HVM5	x5
S2HVM7.5	x8
S2HVM10	x10
S2HVM12.5	x13
S2HVM15	x15