

SUSSEX
SEMICONDUCTOR, INC.

12251 TOWNE LAKE DRIVE, FORT MYERS, FLORIDA, 33913 • TEL: (941) 768-6800 • FAX: (941) 768-6868

**.25 TO 16 AMP STANDARD
RECOVERY RECTIFIER FLIP-DIE**

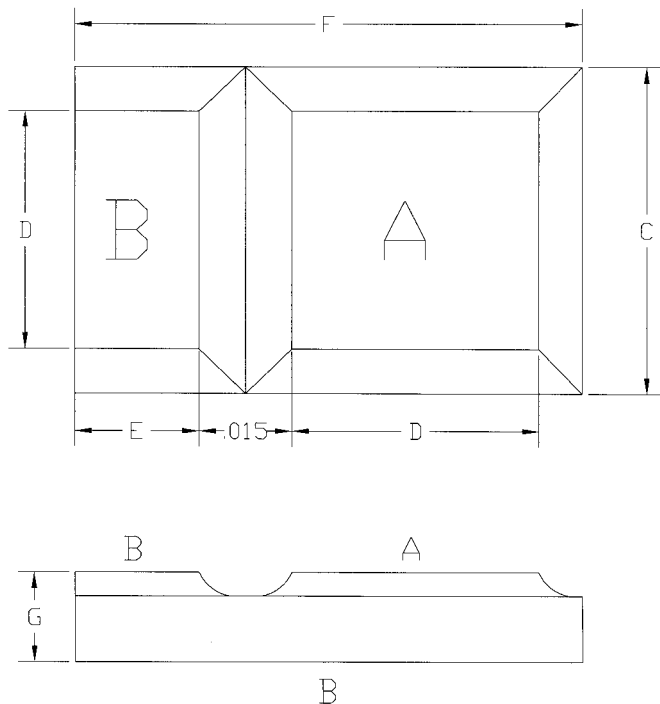
GLASS PASSIVATED STANDARD RECOVERY FLIP-DIE

REVERSE VOLTAGES - 50 TO 1000 VOLTS

FORWARD CURRENT - .25 TO 16 AMPS

**.25 TO 16 AMP STANDARD
RECOVERY FLIP-DIE
SPECIFICATIONS**

- ◆ Standard Recovery Greater Than 500 nanosec.
- ◆ Exclusive Sussex Semiconductor Flip-Die Technology
- ◆ Each Die Fully Glass Passivated; Needs No Encapsulation
- ◆ Each Die Individually Tested
- ◆ Unipolar
- ◆ Operating Temperature: -65 to 150°C
- ◆ Storage Temperature: -65 to 175°C
- ◆ Standard Metallization Ni-Ni-Au
- ◆ Polarity: A-Anode B-Cathode



CUSTOM ORDERING SPECIFIER

DIE SPECIFICATIONS

SFD

UNIPOLAR
RECTIFIER
FLIP DIE

PEAK INVERSE
VOLTAGE (PIV)

'A' SIDE METALLIZATION	
CODE	MATERIAL
A	ALUMINUM
E	GOLD
BLANK	NI-NI-AU

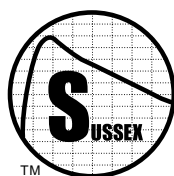
**FOR ELECTRICAL
SPECIFICATIONS
REFER TO STANDARD
RECOVERY
UNIPOLAR RECTIFIER
DIE ON PAGE 7-21**

CONTACT FACTORY FOR ELECTRICAL
SPECIFICATIONS ON CUSTOM PARTS

TABLE 6B - FLIP-DIE DIMENSION SPECIFICATIONS

◆ ALL TOLERANCES ARE $\pm .005"$ ◆ ALL DIMENSIONS ARE IN INCHES

SIZE CODE	C	D	E	F	G	FORWARD CURRENT	SIZE CODE	C	D	E	F	G	FORWARD CURRENT
0.25	0.018	0.010	0.005	0.027	0.011	.25 AMPS	5	0.095	0.080	0.040	0.143	0.011	5 AMPS
0.75	0.030	0.020	0.010	0.045	0.011	.75 AMPS	8	0.100	0.085	0.042	0.150	0.011	8 AMPS
1	0.040	0.028	0.014	0.060	0.011	1 AMP	16	0.115	0.100	0.051	0.173	0.011	16 AMPS
1.5	0.055	0.040	0.020	0.082	0.011	1.5 AMPS							
2	0.070	0.055	0.027	0.105	0.011	2 AMPS							
3	0.085	0.070	0.033	0.120	0.011	3 AMPS							



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**.25 TO 100 AMP STANDARD
RECOVERY RECTIFIER DIE
CONTINUED**

TABLE 2B - STANDARD RECOVERY RECTIFIER DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

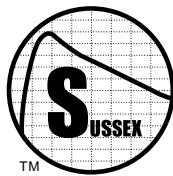
JEDEC PART NUMBER (NOTE 2)	SUSSEX PART NUMBER	MAX. AVERAGE FORWARD RECTIFIED OUTPUT CURRENT AMPS	MAX. INSTANTANEOUS FORWARD VOLTAGE		MAX. LEAKAGE CURRENT (I _R) @ V _{DC}		PEAK FORWARD SURGE CURRENT (NOTE 3) AMPS	PEAK INVERSE VOLTAGE (PIV) VOLTS	MAX. RMS INPUT VOLTAGE V _{RMS} VOLTS
			FORWARD VOLTAGE TEST CURRENT (I _F) AMPS	PEAK FORWARD VOLTAGE @ I _F VOLTS	V _{DC} VOLTS	I _R μA			
1N645	S.75-200	0.75	0.75	1.0	200	0.2	30	200	140
1N647	S.75-400	0.75	0.75	1.0	400	0.2	30	400	280
1N649	S.75-600	0.75	0.75	1.0	600	0.2	30	600	420
N/A	S.75-800	0.75	0.75	1.1	800	5	30	800	560
N/A	S.75-1000	0.75	0.75	1.1	1000	5	30	1000	700
1N4001	S1-50	1.0	1	1.2	50	5	40	50	35
1N4002	S1-100	1.0	1	1.2	100	5	40	100	70
1N4003	S1-200	1.0	1	1.2	200	5	40	200	140
1N4004	S1-400	1.0	1	1.2	400	5	40	400	280
1N4005	S1-600	1.0	1	1.2	600	5	40	600	420
1N4006	S1-800	1.0	1	1.2	800	5	40	800	560
1N4007	S1-1000	1.0	1	1.2	1000	5	40	1000	700
N/A	S1.5-200	1.5	1.5	1.2	20	5	50	200	140
N/A	S1.5-400	1.5	1.5	1.2	400	5	50	400	280
N/A	S1.5-600	1.5	1.5	1.2	600	5	50	600	420
N/A	S1.5-800	1.5	1.5	1.2	800	5	50	800	560
N/A	S1.5-1000	1.5	1.5	1.2	1000	10	50	1000	700
1N5402	S3-200	3.0	3.0	1.2	200	10	200	200	140
1N5404	S3-400	3.0	3.0	1.2	400	10	200	400	280
1N5406	S3-600	3.0	3.0	1.2	600	10	200	600	420
1N5407	S3-800	3.0	3.0	1.2	800	10	200	800	560
1N5408	S3-1000	3.0	3.0	1.2	1000	10	200	1000	700
N/A	S16-200	16	16	1.2	200	10	300	200	140
N/A	S16-400	16	16	1.2	400	10	300	400	280
N/A	S16-600	16	16	1.2	600	10	300	600	420
N/A	S16-800	16	16	1.3	800	10	300	800	560
N/A	S16-1000	16	16	1.3	1000	10	300	1000	700
N/A	S25-200	25	25	1.0	200	20	500	200	140
N/A	S25-600	25	25	1.2	600	20	500	600	420
N/A	S25-1000	25	25	1.4	1000	20	500	1000	700
N/A	S30-200	30	30	1.0	200	20	600	200	140
N/A	S30-600	30	30	1.2	600	20	600	600	420
N/A	S30-1000	30	30	1.4	1000	20	600	1000	700
N/A	S35-200	35	35	1.0	200	20	700	200	140
N/A	S35-600	35	35	1.2	600	20	700	600	420
N/A	S35-1000	35	35	1.4	1000	20	700	1000	700
N/A	S40-200	40	40	1.0	200	20	1000	200	140
N/A	S40-600	40	40	1.2	600	20	1000	600	420
N/A	S40-1000	40	40	1.4	1000	25	1000	1000	700
N/A	S70-200	70	70	1.0	200	20	1200	200	140
N/A	S70-600	70	70	1.2	600	20	1200	600	420
N/A	S70-1000	70	70	1.4	1000	25	1200	1000	700
N/A	S100-200	100	100	1.0	200	20	1800	200	140
N/A	S100-600	100	100	1.2	600	20	1800	600	420
N/A	S100-1000	100	100	1.4	1000	25	1800	1000	700

NOTES

NOTE 1: ♦ ELECTRICAL CHARACTERISTICS MEASURED AT A JUNCTION TEMPERATURE (T_J) OF 25°C UNLESS OTHERWISE STATED

NOTE 2: ♦ JEDEC PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE

NOTE 3: ♦ PEAK FORWARD SURGE CURRENT MEASURED FROM A SINGLE SINE-WAVE BEING SUPERIMPOSED ON A RATED LOAD (JEDEC METHOD)



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**.25 TO 100 AMP STANDARD
RECOVERY RECTIFIER DIE
CONTINUED**

FIGURE 1B - TYPICAL FORWARD CHARACTERISTICS

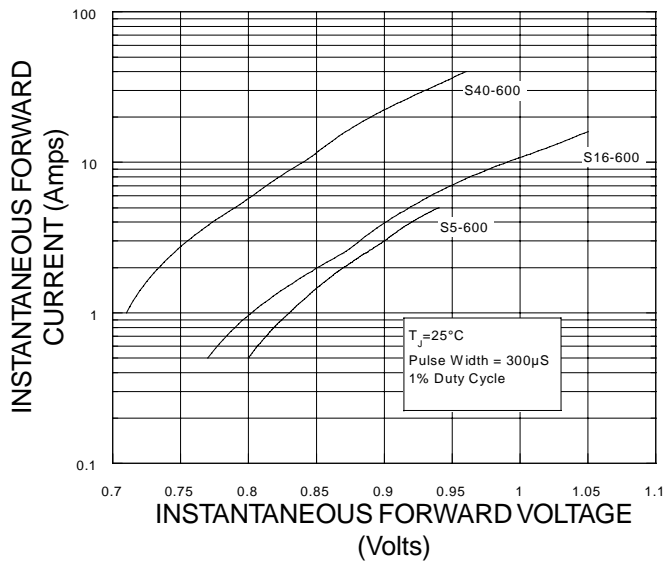
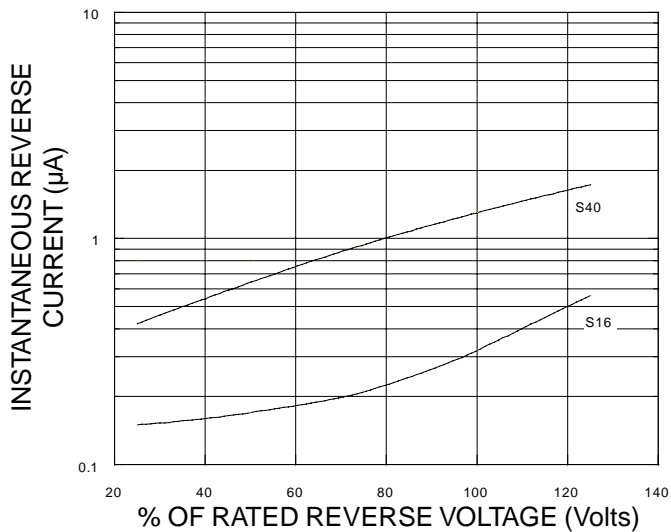


FIGURE 2B - TYPICAL REVERSE CHARACTERISTICS @ 25°C



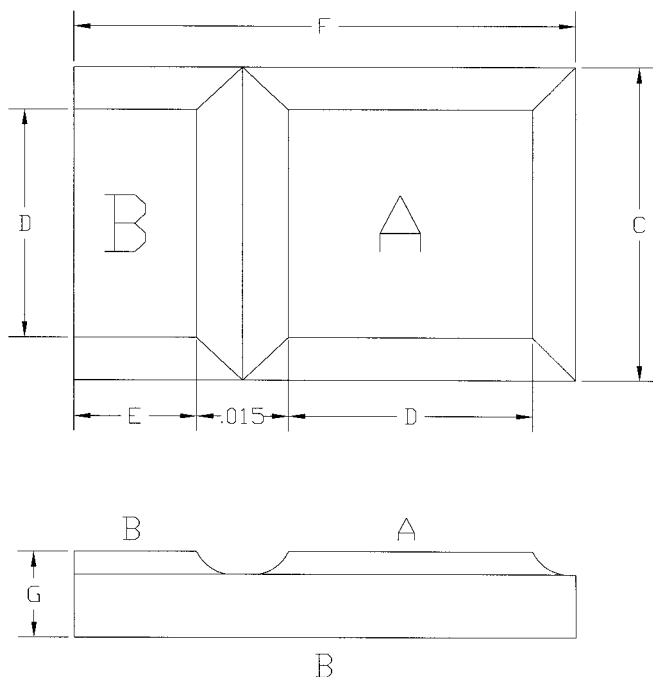


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**.25 TO 16 AMP FAST AND ULTRA
FAST RECOVERY RECTIFIER
FLIP-DIE**



**GLASS PASSIVATED FAST AND ULTRA FAST
RECOVERY FLIP DIE**

REVERSE VOLTAGES - 50 TO 1000 VOLTS

FORWARD CURRENT - .25 TO 16 AMPS

.25 TO 16 AMP FAST AND ULTRA FAST RECOVERY FLIP-DIE SPECIFICATIONS

- ◆ Exclusive Sussex Semiconductor Flip-Die Technology
- ◆ Each Die Fully Glass Passivated; Needs No Encapsulation
- ◆ Each Die Individually Tested
- ◆ Unipolar
- ◆ Operating Temperature: -65 to 150°C
- ◆ Storage Temperature: -65 to 175°C
- ◆ Standard Metallization Ni-Ni-Au
- ◆ Polarity: A-Anode B-Cathode

CUSTOM ORDERING SPECIFIER

SFD - -

UNIPOLAR RECTIFIER FLIP DIE

PEAK INVERSE VOLTAGE (PIV)

TIME OF REVERSE RECOVERY IN nanoseconds (T_{RR}) (NOTE 1)

DIE SPECIFICATIONS

NOTE 1:

NOTES

◆ T_{RR} REVERSE RECOVERY TEST CONDITIONS: FORWARD CURRENT (I_F) = 1 AMP, REVERSE CURRENT (I_R) = 1 AMP, REVERSE CURRENT RECOVERY (I_{RR}) = .5 AMP

◆ BREAKDOWN VOLTAGES GREATER THAN 400 VOLTS ON ULTRA-FAST RECOVERY DIE WILL RESULT IN A HIGHER FORWARD VOLTAGE

'A'-SIDE METALLIZATION	
CODE	MATERIAL
A	ALUMINUM
E	GOLD
BLANK	NI-NI-AU

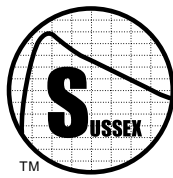
**FOR ELECTRICAL
SPECIFICATIONS
REFER TO FAST AND
ULTRA FAST
UNIPOLAR
RECTIFIER DIE
ON PAGES 7-24
AND 7-25**

CONTACT FACTORY FOR ELECTRICAL
SPECIFICATIONS ON CUSTOM PARTS

TABLE 7B - FLIP-DIE DIMENSION SPECIFICATIONS

◆ ALL TOLERANCES ARE $\pm .005"$ ◆ ALL DIMENSIONS ARE IN INCHES

SIZE CODE	C	D	E	F	G	FORWARD CURRENT	SIZE CODE	C	D	E	F	G	FORWARD CURRENT
0.25	0.018	0.010	0.005	0.027	0.011	.25 AMPS	5	0.095	0.080	0.040	0.143	0.011	5 AMPS
0.75	0.030	0.020	0.010	0.045	0.011	.75 AMPS	8	0.100	0.085	0.042	0.150	0.011	8 AMPS
1	0.040	0.028	0.014	0.060	0.011	1 AMP	16	0.115	0.100	0.051	0.173	0.011	16 AMPS
1.5	0.055	0.040	0.020	0.082	0.011	1.5 AMPS							
2	0.070	0.055	0.027	0.105	0.011	2 AMPS							
3	0.085	0.070	0.033	0.120	0.011	3 AMPS							



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**.25 TO 100 AMP FAST
RECOVERY RECTIFIER DIE
ELECTRICAL SPECIFICATIONS**

TABLE 4B - FAST RECOVERY RECTIFIER DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

JEDEC PART NUMBER (NOTE 2)	SUSSEX PART NUMBER	MAX. AVERAGE FORWARD RECTIFIED OUTPUT CURRENT $T_J = 25^\circ\text{C}$ AMPS	MAX. INSTANTANEOUS FORWARD VOLTAGE		MAX. LEAKAGE CURRENT (I_R) @ V_{DC}		PEAK FORWARD SURGE CURRENT (NOTE 3) AMPS	PEAK INVERSE VOLTAGE (PIV) VOLTS	MAX. RMS INPUT VOLTAGE V_{RMS} VOLTS	TIME OF RECOVERY (T_{RR}) (NOTE 4) nanosec
			FORWARD VOLTAGE TEST CURRENT (I_F) AMPS	PEAK FORWARD VOLTAGE @ I_F VOLTS	V_{DC} VOLTS	I_R μA				
1N5615	S1-200-150	1.0	1.0	1.6	200	1	40	200	140	150
1N5617	S1-400-150	1.0	1.0	1.6	400	1	40	400	280	150
1N5619	S1-600-150	1.0	1.0	1.6	600	1	40	600	420	150
1N5621	S1-800-150	1.0	1.0	1.6	800	1	40	800	560	150
1N5623	S1-1000-150	1.0	1.0	1.6	1000	5	40	1000	700	150
N/A	S1.5-200-150	1.5	1.5	1.4	200	5	50	200	140	150
N/A	S1.5-400-150	1.5	1.5	1.4	400	5	50	400	280	150
N/A	S1.5-600-200	1.5	1.5	1.4	600	5	50	600	420	150
N/A	S1.5-800-200	1.5	1.5	1.4	800	5	50	800	560	150
N/A	S1.5-1000-200	1.5	1.5	1.4	1000	5	50	1000	700	150
1N5415	S3-50-150	3.0	3.0	1.5	50	1	200	50	35	150
1N5416	S3-100-150	3.0	3.0	1.5	100	1	200	100	70	150
1N5417	S3-200-150	3.0	3.0	1.5	200	1	200	200	140	150
1N5418	S3-400-150	3.0	3.0	1.5	400	1	200	400	280	150
1N5419	S3-500-150	3.0	3.0	1.5	500	1	200	500	350	150
1N5420	S3-600-200	3.0	3.0	1.5	600	1	200	600	420	200
N/A	S3-800-200	3.0	3.0	1.5	800	5	200	800	560	200
N/A	S3-1000-300	3.0	3.0	1.5	1000	10	200	1000	700	300
N/A	S16-200-150	16.0	16.0	1.5	200	10	300	200	140	150
N/A	S16-400-150	16.0	16.0	1.5	400	10	300	400	280	150
N/A	S16-600-200	16.0	16.0	1.5	600	10	300	600	420	200
N/A	S16-800-200	16.0	16.0	1.5	800	10	300	800	560	200
N/A	S16-1000-300	16.0	16.0	1.5	1000	10	300	1000	700	300

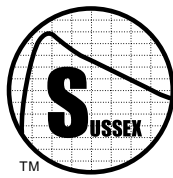
NOTES

NOTE 1: ♦ ELECTRICAL CHARACTERISTICS MEASURED AT A JUNCTION TEMPERATURE (T_J) OF 25°C UNLESS OTHERWISE STATED

NOTE 2: ♦ JEDEC PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE

NOTE 3: ♦ PEAK FORWARD SURGE CURRENT MEASURED FROM A SINGLE SINE-WAVE BEING SUPERIMPOSED ON A RATED LOAD (JEDEC METHOD)

NOTE 4: ♦ T_{RR} - REVERSE RECOVERY TEST CONDITIONS:
FORWARD CURRENT (I_F) = 1 AMP, REVERSE CURRENT (I_R) = 1 AMP, REVERSE CURRENT RECOVERY (I_{RR}) = .5 AMP



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.25 TO 100 AMP ULTRA-FAST RECOVERY RECTIFIER DIE ELECTRICAL SPECIFICATIONS

TABLE 5B - ULTRA FAST RECOVERY RECTIFIER DIE ELECTRICAL SPECIFICATIONS (NOTE 1)

JEDEC PART NUMBER (NOTE 2)	SUSSEX PART NUMBER (NOTE 3)	MAX. AVERAGE FORWARD RECTIFIED OUTPUT CURRENT $T_J=25^\circ\text{C}$ AMPS	MAX. INSTANTANEOUS FORWARD VOLTAGE		MAX. LEAKAGE CURRENT (I_R) @ V_{DC}		PEAK FORWARD SURGE CURRENT (NOTE 4) AMPS	PEAK INVERSE VOLTAGE (PIV) VOLTS	MAX. RMS INPUT VOLTAGE V_{RMS} VOLTS	TIME OF RECOVERY (T_{RR}) (NOTE 5) nanosec
			FORWARD VOLTAGE TEST CURRENT (I_F) AMPS	PEAK FORWARD VOLTAGE @ I_F VOLTS	V_{DC} VOLTS	I_R mA				
N/A	S1-100-50	1.0	1.0	0.975	100	1	40	100	70	50
N/A	S1-200-50	1.0	1.0	0.975	200	1	40	200	140	50
N/A	S1-400-50	1.0	1.0	1.000	400	1	40	400	280	50
N/A	S1-600-50	1.0	1.0	1.300	600	1	40	600	420	50
N/A	S1-800-50	1.0	1.0	1.500	800	1	40	800	560	50
N/A	S1-1000-50	1.0	1.0	1.600	1000	10	40	1000	700	50
1N5802	HOUSE NUMBER	2.5	1.0	0.875	50	1	50	50	35	25
1N5803	HOUSE NUMBER	2.5	1.0	0.875	75	1	50	75	52.5	25
1N5804	HOUSE NUMBER	2.5	1.0	0.875	100	1	50	100	70	25
1N5805	HOUSE NUMBER	2.5	1.0	0.875	125	1	50	125	87.5	25
1N5806	HOUSE NUMBER	2.5	1.0	0.875	150	1	50	150	105	25
N/A	S3-200-50	3.0	3.0	0.975	200	10	200	200	140	50
N/A	S3-400-50	3.0	3.0	1.000	400	10	200	400	280	50
N/A	S3-600-50	3.0	3.0	1.500	600	10	200	600	420	50
N/A	S3-800-50	3.0	3.0	1.600	800	10	200	800	560	50
N/A	S3-1000-50	3.0	3.0	1.800	1000	10	200	1000	700	50
1N5807	HOUSE NUMBER	6.0	4.0	0.875	50	5	300	50	35	30
1N5808	HOUSE NUMBER	6.0	4.0	0.875	75	5	300	75	52.5	30
1N5809	HOUSE NUMBER	6.0	4.0	0.875	100	5	300	100	70	30
1N5810	HOUSE NUMBER	6.0	4.0	0.875	125	5	300	125	87.5	30
1N5811	HOUSE NUMBER	6.0	4.0	0.875	150	5	300	150	105	30
N/A	S16-50-35	16.0	16.0	0.975	50	10	300	50	35	35
N/A	S16-100-35	16.0	16.0	0.975	100	10	300	100	70	35
N/A	S16-200-35	16.0	16.0	0.975	200	10	300	200	140	35
N/A	S16-400-50	16.0	16.0	1.000	400	10	300	400	280	50
N/A	S16-600-50	16.0	16.0	1.800	600	10	300	600	420	50
N/A	S16-800-50	16.0	16.0	1.800	800	10	300	800	560	50
N/A	S16-1000-50	16.0	16.0	2.000	1000	10	300	1000	700	50
N/A	S25-50-50	25.0	25.0	0.975	50	20	500	50	35	50
N/A	S25-100-50	25.0	25.0	0.975	100	20	500	100	70	50
N/A	S25-200-50	25.0	25.0	0.975	200	20	500	200	140	50
N/A	S25-400-50	25.0	25.0	1.000	400	20	500	400	280	50
N/A	S25-600-50	25.0	25.0	1.800	600	20	500	600	420	50
N/A	S25-800-75	25.0	25.0	1.800	800	25	500	800	560	75
N/A	S25-1000-75	25.0	25.0	2.000	1000	25	500	1000	700	75
N/A	S40-50-50	40.0	40.0	0.975	50	20	1000	50	35	50
N/A	S40-100-50	40.0	40.0	0.975	100	20	1000	100	70	50
N/A	S40-200-50	40.0	40.0	0.975	200	20	1000	200	140	50
N/A	S40-400-50	40.0	40.0	1.000	400	20	1000	400	280	50
N/A	S40-600-50	40.0	40.0	1.800	600	20	1000	600	420	50
N/A	S40-800-50	40.0	40.0	1.800	800	25	1000	800	560	50
N/A	S40-1000-50	40.0	40.0	2.000	1000	25	1000	1000	700	50
N/A	S70-50-50	70.0	70.0	0.975	50	20	1200	50	35	50
N/A	S70-100-50	70.0	70.0	0.975	100	20	1200	100	70	50
N/A	S70-200-50	70.0	70.0	0.975	200	20	1200	200	140	50

NOTES

NOTE 1: ♦ ELECTRICAL CHARACTERISTICS MEASURED AT A JUNCTION TEMPERATURE (T_J) OF 25°C UNLESS OTHERWISE STATED

NOTE 2: ♦ JEDEC PART NUMBERS REFER TO PACKAGED DEVICES. THE DIES INDICATED BY THESE NUMBERS, IF PROPERLY PACKAGED, WILL OPERATE WITH THE SAME PERFORMANCE

NOTE 3: ♦ CONTACT FACTORY DIRECTLY FOR INFORMATION REGARDING A HOUSE NUMBER

NOTE 4: ♦ PEAK FORWARD SURGE CURRENT MEASURED FROM A SINGLE SINE-WAVE BEING SUPERIMPOSED ON A RATED LOAD (JEDEC METHOD)

NOTE 5: ♦ T_{RR} - REVERSE RECOVERY TEST CONDITIONS:
FORWARD CURRENT (I_F) = 1AMP, REVERSE CURRENT (I_R) = 1 AMP, REVERSE CURRENT RECOVERY (I_{RR}) = .5 AMP



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**.25 TO 100 AMP FAST AND
ULTRA-FAST RECOVERY
RECTIFIER DIE CONTINUED**

FIGURE 3B - TYPICAL FORWARD CHARACTERISTICS

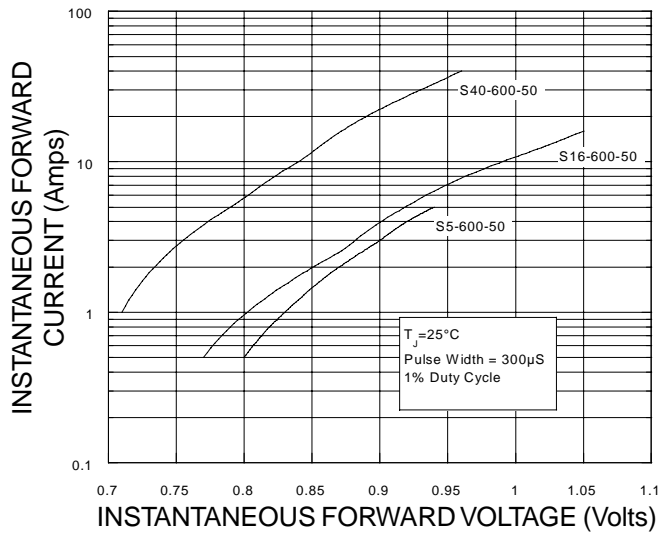


FIGURE 4B - TYPICAL REVERSE CHARACTERISTICS @ 25°C

