

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS		UNITS
$I_{F(AV)}$		1400	A
	$T_{hs}$	55	°C
$I_{F(RMS)}$		2500	A
	$T_{hs}$	25	°C
$I_{FSM}$	50 Hz	13 000	A
	60 Hz	13 600	
$I^2t$	50 Hz	846	kA <sup>2</sup> s
	60 Hz	772	
$V_{RRM}$	Range	400 to 2000	V
$T_J$		-40 to +180	°C

## ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	$V_{RRM}$ , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	$I_{RRM}$ MAXIMUM AT $T_J = T_J$ MAXIMUM mA
VS-SD1100C..C	04	400	500	35
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	22	2200	2300	
	25	2500	2600	
	30	3000	3100	
	32	3200	3300	

FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS			UNITS	
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled			1400 (795)	A
					55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled			2500	A
Maximum peak, one-cycle forward, non-repetitive current	$I_{FSM}$	t = 10 ms	No voltage reappplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	13 000	
		t = 8.3 ms			13 600	
		t = 10 ms	100 % $V_{RRM}$ reappplied		10 930	
		t = 8.3 ms			11 450	
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reappplied		846	kA <sup>2</sup> s
		t = 8.3 ms			772	
		t = 10 ms	100 % $V_{RRM}$ reappplied		598	
		t = 8.3 ms			546	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reappplied			8460	kA <sup>2</sup> √s
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$ , $T_J = T_J$ maximum)			0.78	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$ , $T_J = T_J$ maximum)			0.94	
Low level value of forward slope resistance	$r_{f1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$ , $T_J = T_J$ maximum)			0.35	mΩ
High level value of forward slope resistance	$r_{f2}$	(I > $\pi \times I_{F(AV)}$ , $T_J = T_J$ maximum)			0.26	
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 1500$ A, $T_J = T_J$ maximum $t_p = 10$ ms sinusoidal wave			1.31	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS		UNITS
Maximum junction operating temperature range	$T_J$		-40 to +180	°C
Maximum storage temperature range	$T_{Stg}$		-55 to +200	
Maximum thermal resistance, junction to heatsink	$R_{thJ-hs}$	DC operation single side cooled	0.076	K/W
		DC operation double side cooled	0.038	
Mounting force, ± 10 %			9800 (1000)	N (kg)
Approximate weight			83	g
Case style		See dimensions - link at the end of datasheet	B-43	

$\Delta R_{thJ-hs}$ CONDUCTION						
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.007	0.007	0.005	0.005	$T_J = T_J$ maximum	K/W
120°	0.008	0.008	0.008	0.008		
90°	0.010	0.010	0.011	0.011		
60°	0.015	0.015	0.016	0.016		
30°	0.026	0.026	0.026	0.026		

### Note

- The table above shows the increment of thermal resistance  $R_{thJ-hs}$  when devices operate at different conduction angles than DC