

20A/300V 快恢复二极管 20A/300V Fast Recovery Diodes

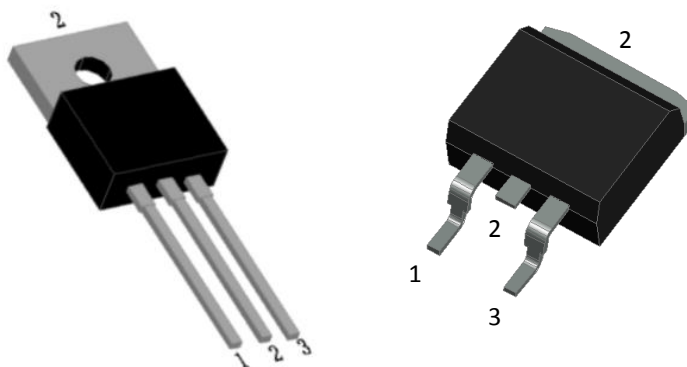
■特征 Features

- 超快恢复时间
Ultrafast Recovery Times
- 软恢复特性
Softer Recovery Characteristics
- 低正向电压
Low Forward Voltage
- 低反向漏电流
Low reverse leakage current

■应用范围 Applications

- 续流二极管
Free Wheeling Diode
- 电机控制器
Motor Controllers
- 开关式电源
Switching mode power supply
- 转换器
Converters
- 逆变器
Inverters
- 缓冲二极管
Snubber Diode
- 功率因数校正
PFC:Power Factor Correction

关键参数 KEY PARAMETERS		
参数 PARAMETER	数值 VALUE	单位 UNIT
$I_{F(AV)}$	20	A
V_F	0.9	V
V_{RRM}	300	V
TRR	25	ns
Package	TO-220	



■机械参数 Mechanical Data

- 安装扭矩: 8.0kgf.cm (S1FD20C30U)
Mounting torque: 8.0kgf.cm max
- 重量: 约 2.1 克 (S1FD20C30U)
Weight : About 2.1 grams
- 重量: 约 1.6 克 (S1FD20D30U)
Weight : About 2.1 grams



■最大额定值 Maximum Ratings @ Ta = 25°C unless otherwise noted

特征/测试条件 Characteristic / Test Conditions	符号 SYMBOL	典型值 TYP	单位 UNIT
反向重复峰值电压 Maximum recurrent peak reverse voltage	VRRM	300	V
最大平均正向电流, TC=100°C Maximum Average Forward Current, TC=100°C	IF(AV)	20 (10*2)	A
最大正向浪涌电流, 10ms 正弦半波 Peak surge forward current, 10ms single half sine-wave superimposed on rated load	IFSM	120	A
结温 Junction Temperature	TJ	-55 ~ +175	°C
存储温度 Storage Temperature Range	TSTG	-55 ~ +150	°C
耐焊接热, 高温持续 10 秒 Resistance to Soldering Heat, Lead Temperature for 10 Sec	TL	260	°C

■ 电性特性 Electrical Characteristics @ Ta = 25°C unless otherwise noted

特征/测试条件 Characteristic / Test Conditions	符号 SYMBOL	典型值 TYP	最大值 MAX	单位 UNIT	
正向峰值电压 Peak Forward Voltage	VF	IF=10A, Tj=25°C	0.9	1.2	V
		IF=10A, Tj=150°C	0.8	1.0	V
VR=VRRM, 脉冲测试, 单个二极管的额定值 VR=VRRM, Pulse measurement Rating of per diode	IR	Tj=25°C	/	5	μA
		Tj=150°C	/	500	
反向恢复时间 Reverse Recovery Time	IF=0.5A IRR=0.25A IRM=1A TC=25°C	TRR	20	25	ns

■ 电性特性 Electrical Characteristics @ Ta = 25°C unless otherwise noted

符号 SYMBOL	特征/测试条件 Characteristic / Test Conditions	典型值 TYP	最大值 MAX	单位 UNIT
TRR	反向恢复时间 Reverse Recovery Time	30	/	ns
IRRM	最大反向恢复电流 Maximum Reverse Recovery Current	4	/	A
QRR	反向恢复电荷 Reverse Recovery Charge	60	/	nc
TRR	反向恢复时间 Reverse Recovery Time	50	/	ns
IRRM	最大反向恢复电流 Maximum Reverse Recovery Current	7	/	A
QRR	反向恢复电荷 Reverse Recovery Charge	180	/	nc

■ 热特性 Thermal Characteristics @ Ta = 25°C unless otherwise noted

特征/测试条件 Characteristic / Test Conditions	符号 SYMBOL	典型值 TYP	最大值 MAX	单位 UNIT
结到管壳的热阻 (S2FD20C30U) Junction to case	R _{θJC}	2.5	/	°C/W
结到管壳的热阻 (S2FD20D30U) Junction to case	R _{θJC}	5.6	/	°C/W

■特性曲线 Characteristic Curve

FIG.1 . Derating Curve For Output Rectified Current

图 1. 电流降额曲线

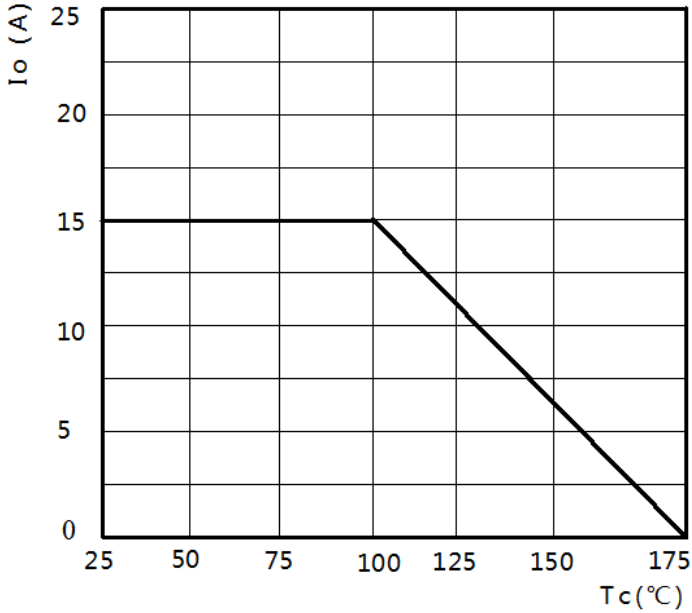


FIG.2 . Maximum Non-Repetitive Peak Forward Surge Current Per Bridge Element

图 2. 最大正向不重复峰值浪涌电流

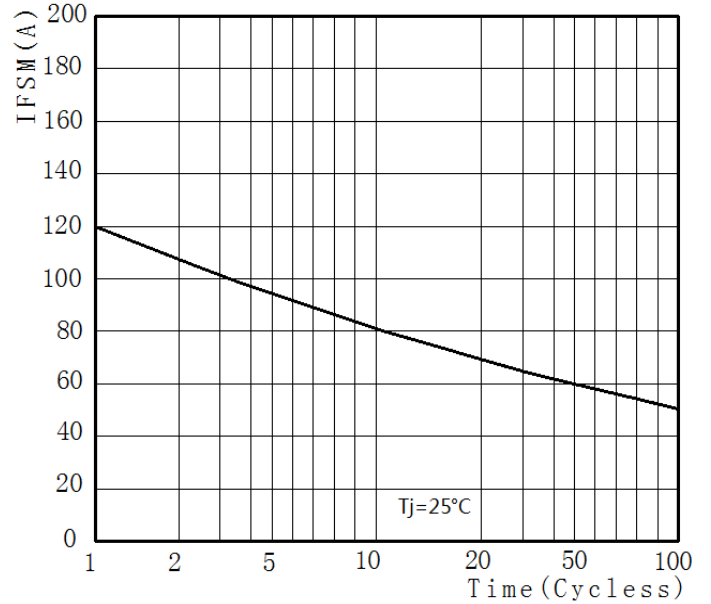


FIG3. Typical Reverse Characteristics Per Bridge Element

图 3. 典型反向特性

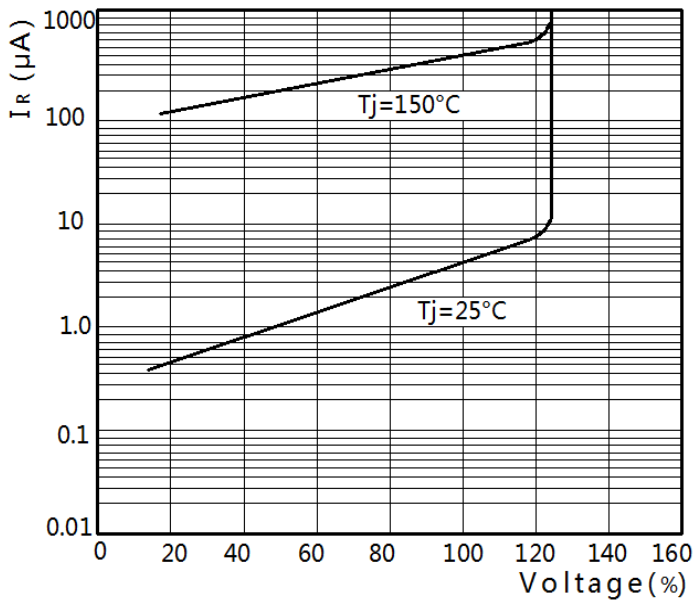
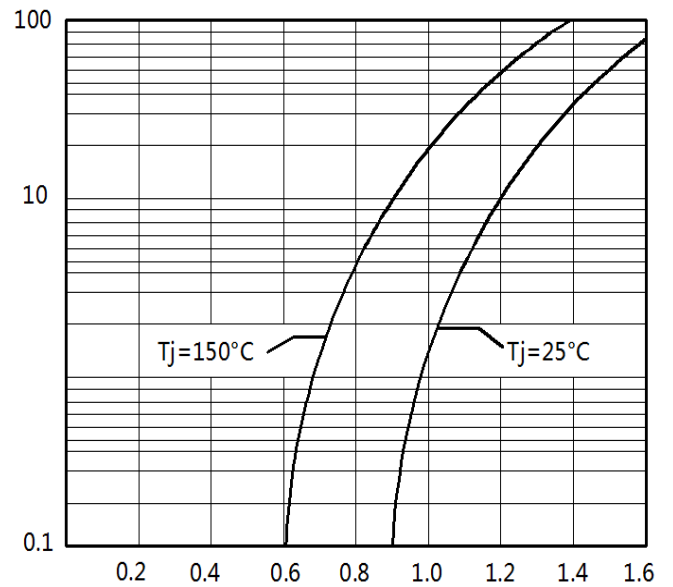
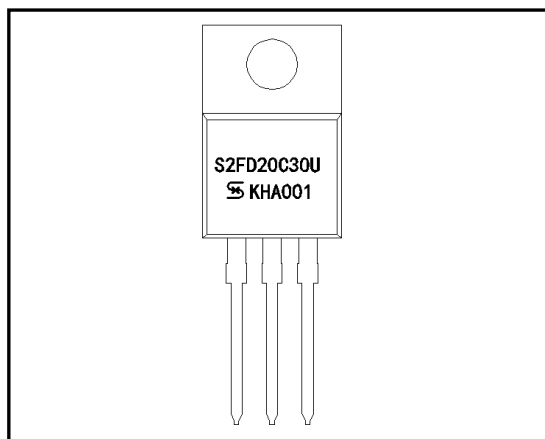



FIG4. Typical Forward Characteristics Per Bridge Element

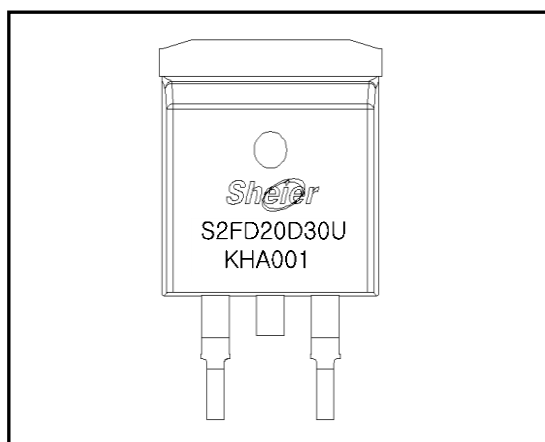
图 4. 典型正向特性




■ 标记图 Marking Diagram

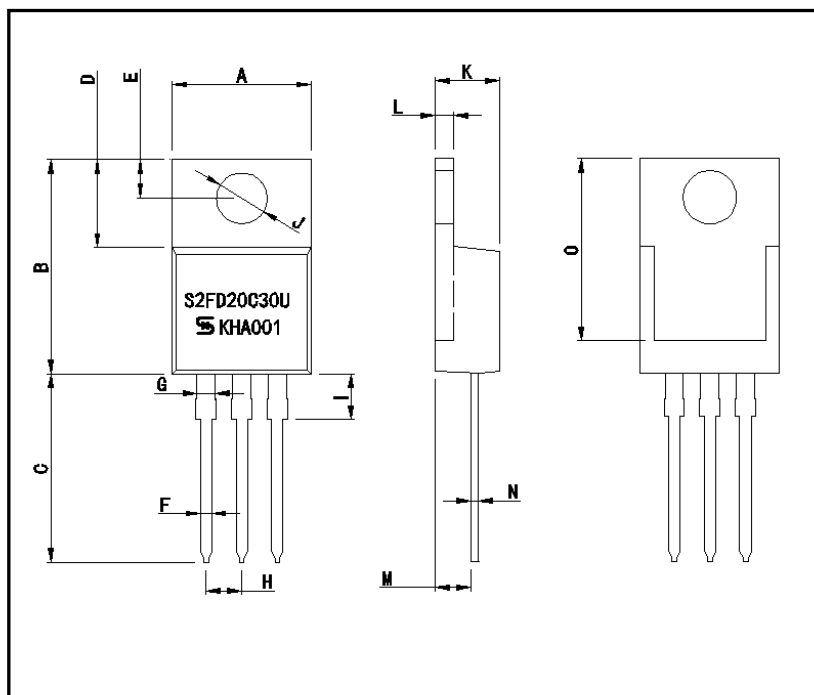


 : 公司LOGO
 S2FD20C30U : 标识代码
 Marking code
 NAA001 : 制程码
 Process code



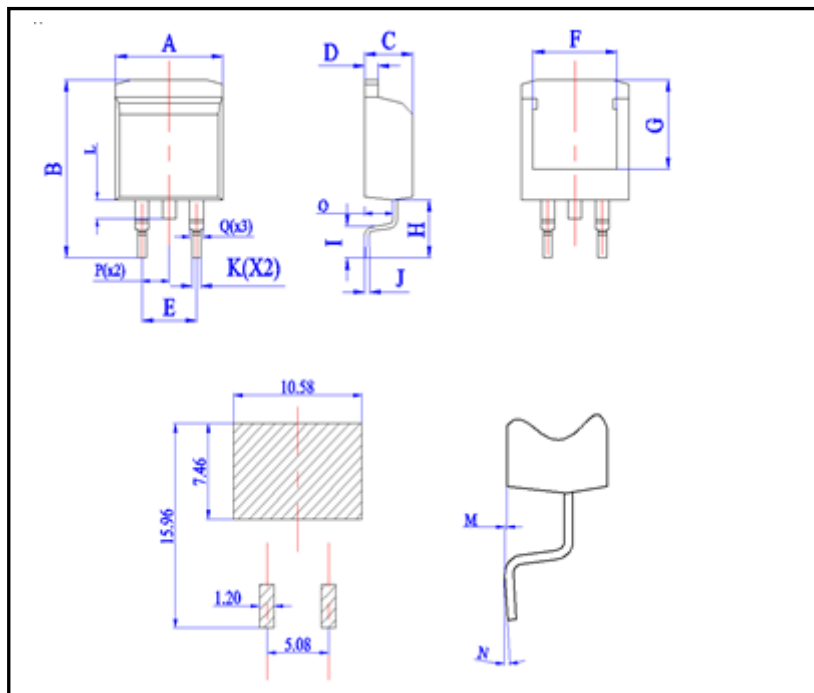
 : 公司LOGO
 S2FD20D30U : 标识代码
 Marking code
 KHA001 : 制程码
 Process code

■ 尺寸图 Dimension Drawing (S2FD20C30U)



Dim.	Millimeter		Inches	
	min	max	min	max
A	9.70	10.3	0.38	0.41
B	15.1	15.7	0.59	0.62
C	13	14	0.51	0.55
D	6	6.6	0.24	0.26
E	2.5	3.1	0.10	0.12
F	0.6	1	0.02	0.04
G	1.05	1.45	0.04	0.06
H	2.3	2.7	0.09	0.11
I	3.1	4.1	0.12	0.16
J	3.4	3.8	0.13	0.15
K	4.3	4.9	0.17	0.19
L	1	1.6	0.04	0.06
M	2.34	2.74	0.09	0.11
N	0.4	0.8	0.02	0.03
O	13.2	13.8	0.52	0.54

■尺寸图 Dimension Drawing (S2FD20D30U)



Dim.	Millimeter	
	min	max
A	9.80	10.4
B	15.3	15.9
C	4.30	4.70
D	1.20	1.40
E	4.98	5.18
F	7.40	8.20
G	7.40	8.30
H	4.93	5.23
I	2.60	2.90
J	0.35	0.80
K	0.78	0.85
L	0.03	0.20
M	0°	8°
N	1.30	1.90
O	2.50	2.85
P	2.45	2.65
Q	1.15	1.40

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