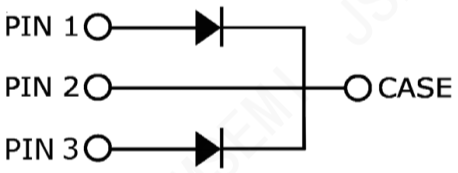
Features

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on V_F
- Temperature Independent Switching Behavior
- High surge current capability
- 100% avalanche tested

TO-247-3

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- High Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection



Applications

- Servo Drives
- Solar / Wind Inverters
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Maximum Ratings(Tc=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	T_j = 25℃	1200	V
Surge Peak Reverse Voltage	V_{RSM}	T_j = 25℃	1300	V
DC Blocking Voltage	V_R	T_C = 25℃	1200	V
Forward Current	I_F	T_C ≤ 135℃ T_C ≤ 150℃	13/26 8/16	A
Non-Repetitive Forward Surge Current	I_{FSM}	T_C = 25℃, t_p = 8.3ms, Half Sine Wave	70	A
Power Dissipation	P_{tot}	T_C = 25℃	60/140	W
Maximum Case Temperature	T_C		153	℃
Operating Junction and Storage Temperature	T_J, T_{STG}		-55 to 175	℃
TO-247 Mounting Torque		M3 Screw	1	Nm

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 10A, T_J = 25℃ I_F = 10A, T_J = 175℃	1.45 2.0	1.75 2.6	V
Reverse Current	I_R	V_R = 1200V, T_J = 25℃ V_R = 1200V, T_J = 175℃	4 30	100 300	μA
Total Capacitance	C	V_R = 0V, T_J = 25℃, f = 1MHz V_R = 400V, T_J = 25℃, f = 1MHz V_R = 800V, T_J = 25℃, f = 1MHz	800 56 42	/	pF
Total Capacitive Charge	Q_C	V_R = 800V, I_F = 10A di/dt = 200A/μs, T_J = 25℃	61	/	nC

Note：This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.52/1.04	℃/W

Typical Performance(Per Leg)

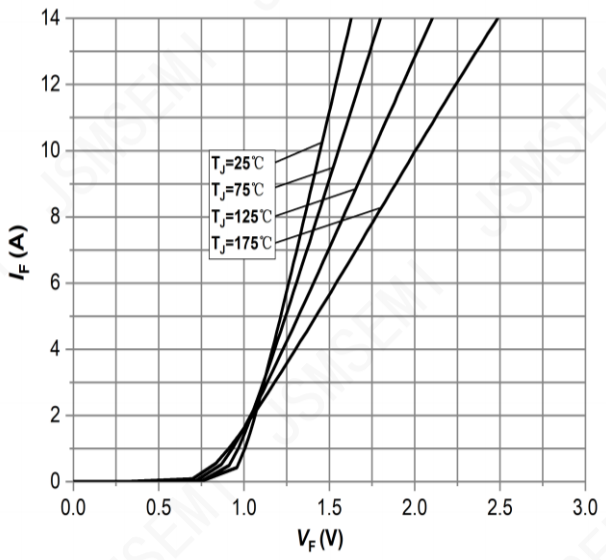


Figure 1: Forward Characteristics

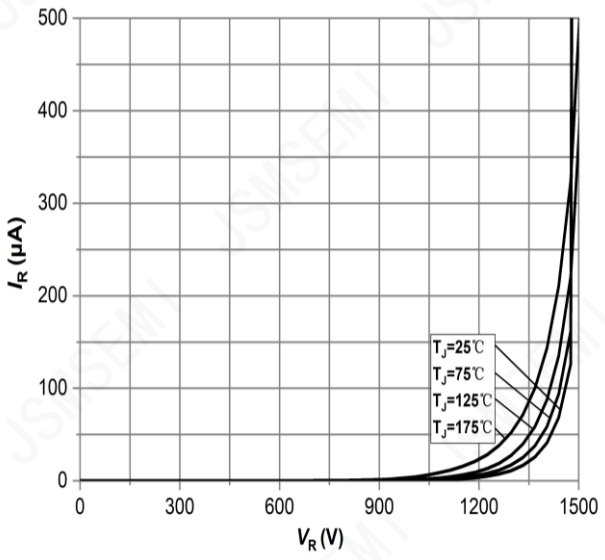


Figure 2: Reverse Characteristics

Typical Performance

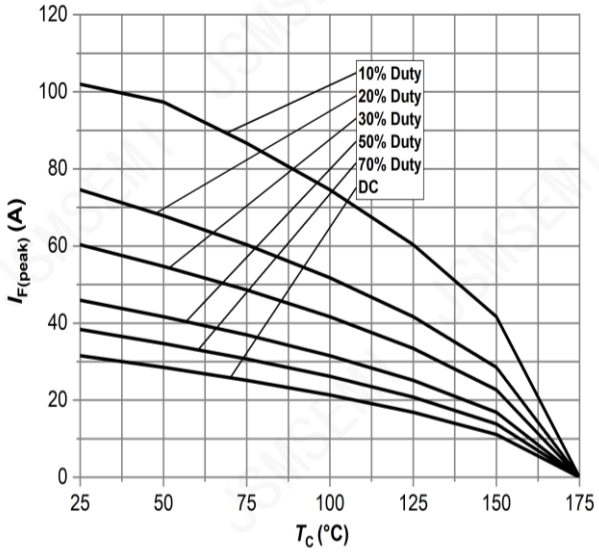


Figure 3: Current Derating

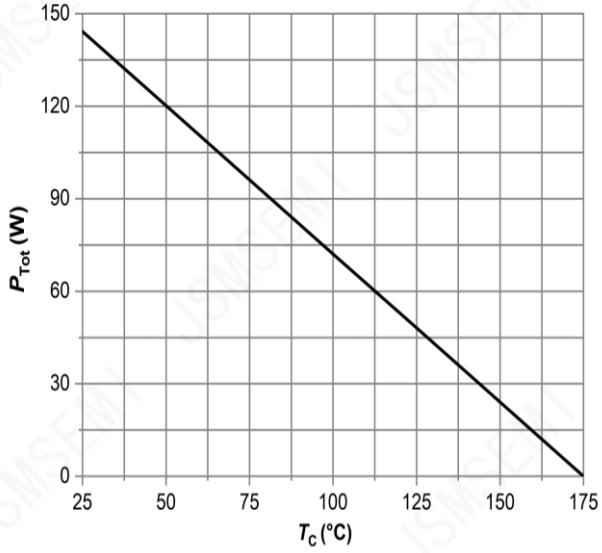


Figure 4: Power Derating

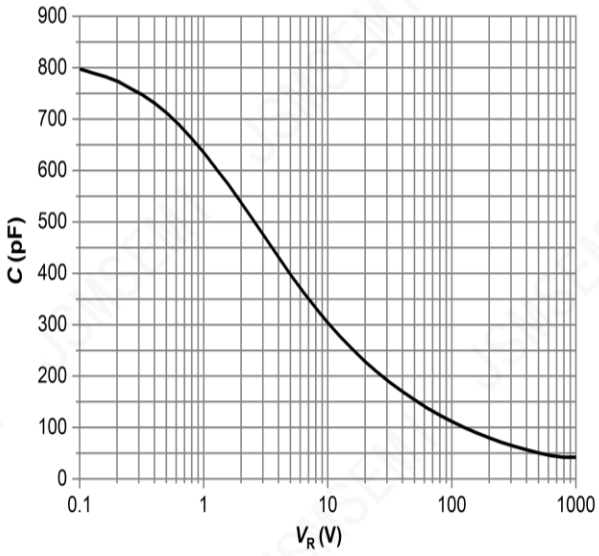


Figure 5: Capacitance vs. Reverse Voltage

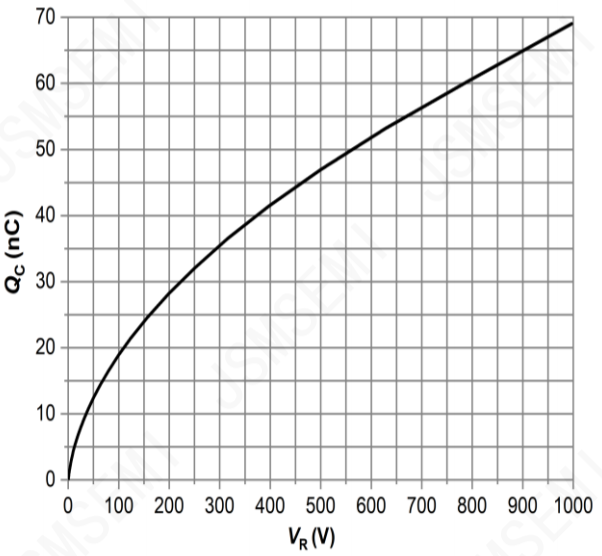


Figure 6: Total Capacitance Charge vs. Reverse

Typical Performance

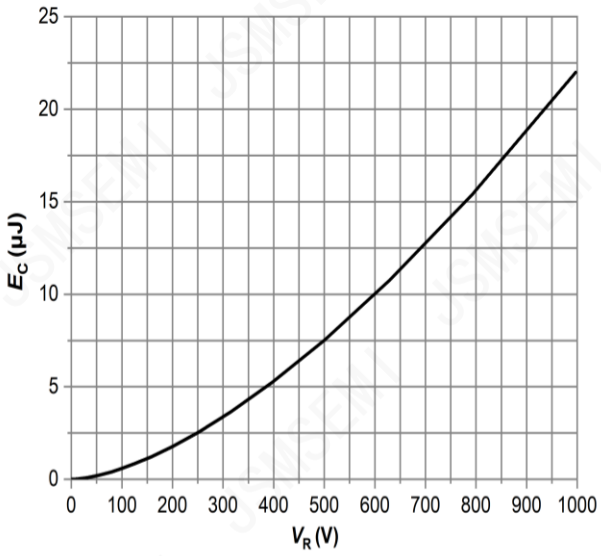


Figure 7:Typical Capacitance StoredEnergy

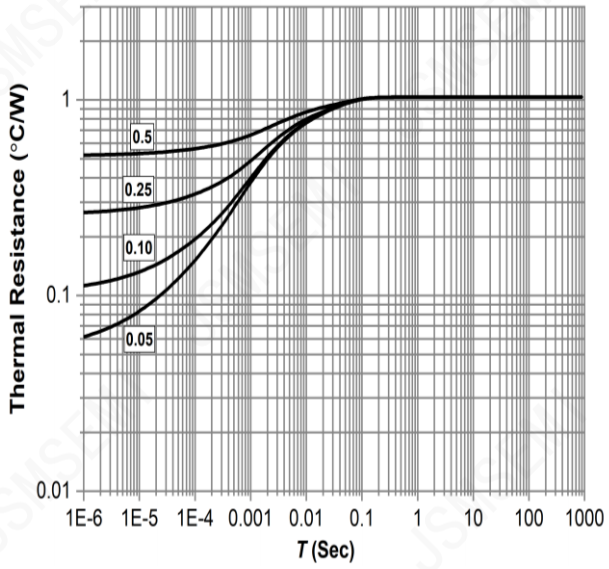


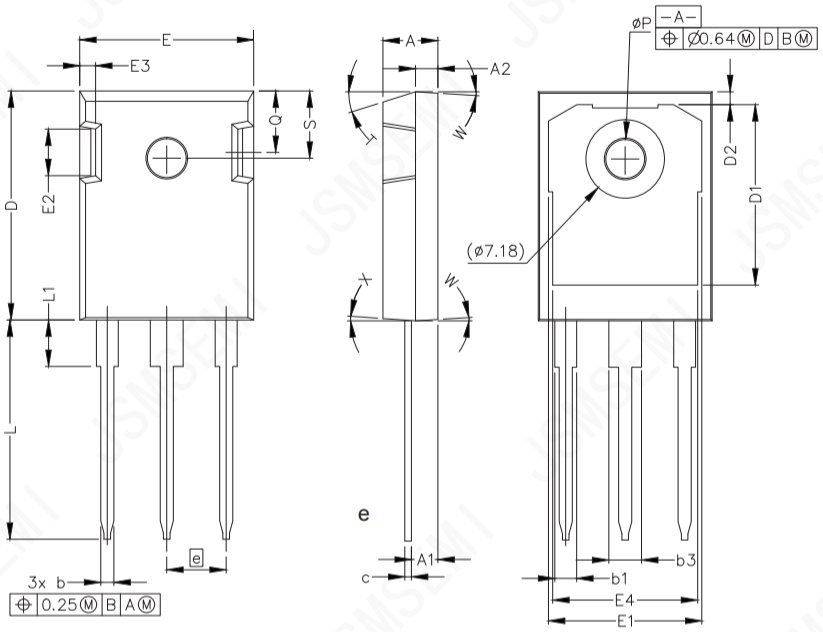
Figure 8:Transient Thermal Impedance

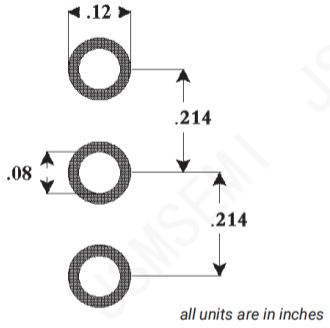
Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SFFSH15120ADN-F155	TO-247-3	SC4D15120D	-55 to 175°C	1	TUBE,450	Rohs

Package Dimensions

(TO-247-3 Package)





Recommended Solder Pad Layout

POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.042	.052	1.07	1.33
b1	.075	.095	1.91	2.41
b3	.113	.133	2.87	3.38
c	.022	.027	0.55	0.68
D	.819	.831	20.80	21.10
D1	.640	.695	16.25	17.65
D2	.037	.049	0.95	1.25
E	.620	.635	15.75	16.13
E1	.516	.557	13.10	14.15
E2	.145	.201	3.68	5.10
E3	.039	.075	1.00	1.90
E4	.487	.529	12.38	13.43
e	.214 BSC		5.44 BSC	
L	.780	.800	19.81	20.32
L1	.161	.173	4.10	4.40
N	3			
ØP	.138	.144	3.51	3.65
Q	.216	.236	5.49	6.00
S	.238	.248	6.04	6.30
T	17.5° REF			
W	3.5° REF			
X	4° REF			

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2022

Important Notice

JSMSEMI Semiconductor (JSMSEMI) PRODUCTS ARE NEITHER DESIGNED NOR INTENDED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS UNLESS THE SPECIFIC JSMSEMI PRODUCTS ARE SPECIFICALLY DESIGNATED BY JSMSEMI FOR SUCH USE. BUYERS ACKNOWLEDGE AND AGREE THAT ANY SUCH USE OF JSMSEMI PRODUCTS WHICH JSMSEMI HAS NOT DESIGNATED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS IS SOLELY AT THE BUYER’S RISK.

JSMSEMI assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using JSMSEMI products.

Resale of JSMSEMI products or services with statements diferent from or beyond the parameters stated by JSMSEMI for that product or service voids all express and any implied warranties for the associated JSMSEMI product or s ervice. JSMSEMI is not responsible or liable for any such statements.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc.When designing equipment, refer to the "Delivery Specification" for the JSMSEMI product that you intend to use.

For additional information please contact Kevin@ jsmsemi.com or visit www.jsmsemi.com