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

TO-220-2

Benefits

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

Applications

- Server/Telecom Power Supplies
- Solar 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}		1200	V
Surge Peak Reverse Voltage	V_{RSM}		1300	V
DC Peak Reverse Voltage	V_R		1200	V
Continuous Forward Current	I_F	Tc=25 ℃ Tc=135 ℃ Tc=156℃	17 8 5	A
Non-Repetitive Forward Surge Current	I_{FSM}	Tc=25 ℃，t_p=10 ms，Half Sine Pulse	35	A
Power Dissipation	P_{tot}	Tc=25 ℃ Tc=110 ℃	110 18	W
Operating Junction Range	T_J		-55 to +175	℃
Storage Temperature Range	T_{stg}		-55 to +175	℃

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SFFSP05120A	TO-220-2	SC4D05120A	-55 to 175°C	1	TUBE,1000	Rohs

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 5A, T_J = 25 ℃ I_F = 5A, T_J = 175℃	1.44 1.9	1.8 3.0	V
Reverse Current	I_R	V_R = 1200V, T_J = 25 ℃ V_R = 1200V, T_J = 175 ℃	2.5 10	30 15	μA
Total Capacitive Charge	Q_C	V_R = 800V, I_F = 5A, T_J = 25 ℃	34	0	nC
Total Capacitance	C	V_R = 0 V, T_J = 25 ℃, f= 1 MHz V_R = 400 V, T_J = 25 ℃, f= 1 MHz V_R = 800 V, T_J = 25 ℃, f= 1 MHz	320 32 22		pF
Capacitance Stored Energy	E_C	V_R = 800 V	9.5		μJ

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

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$		1.36		℃/W

Typical Performance

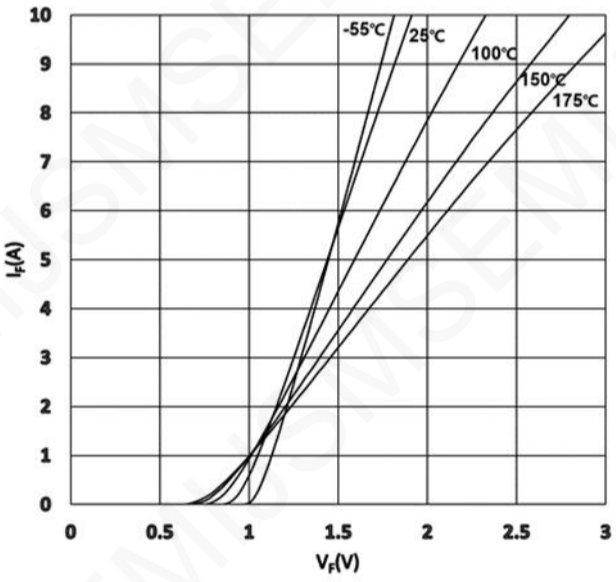


Figure 1: Forward Characteristics

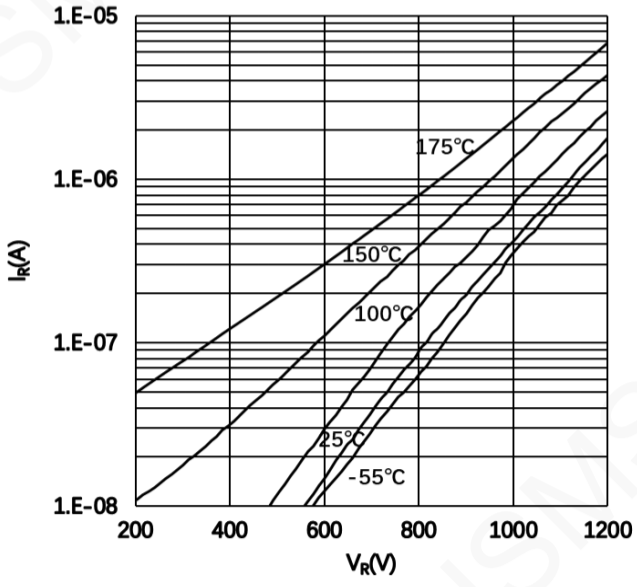


Figure 2: Reverse Characteristics

Typical Performance

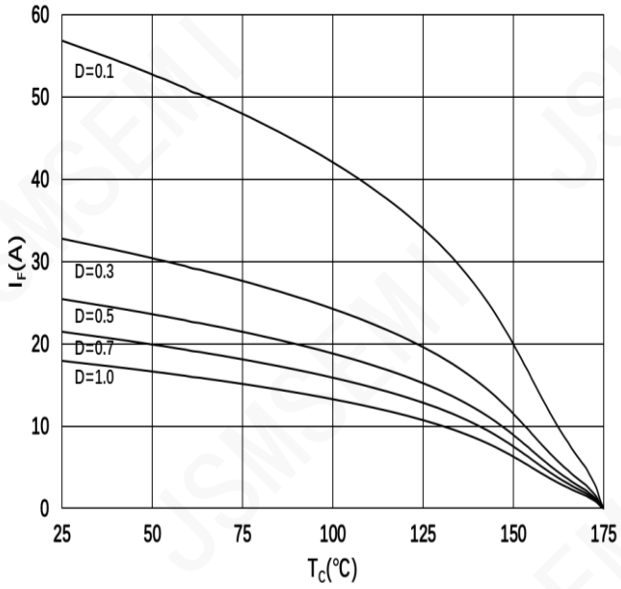


Figure 3: Current Derating

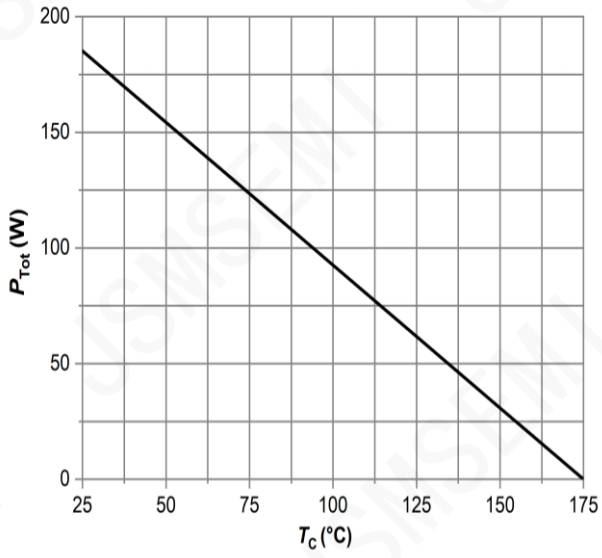


Figure 4: Power Derating

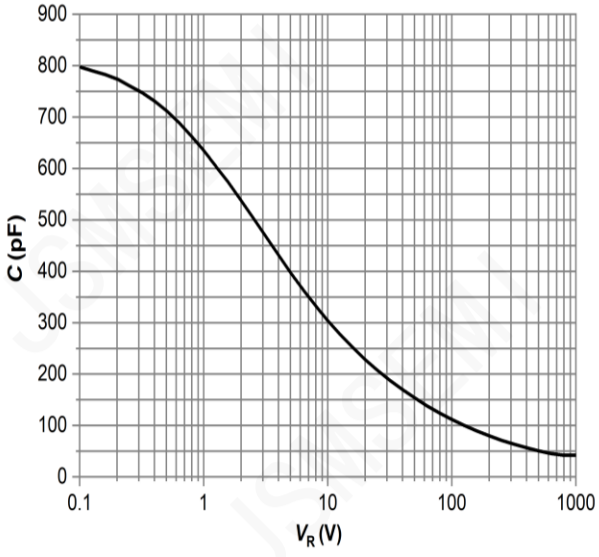


Figure 5: Capacitance vs. Reverse Voltage

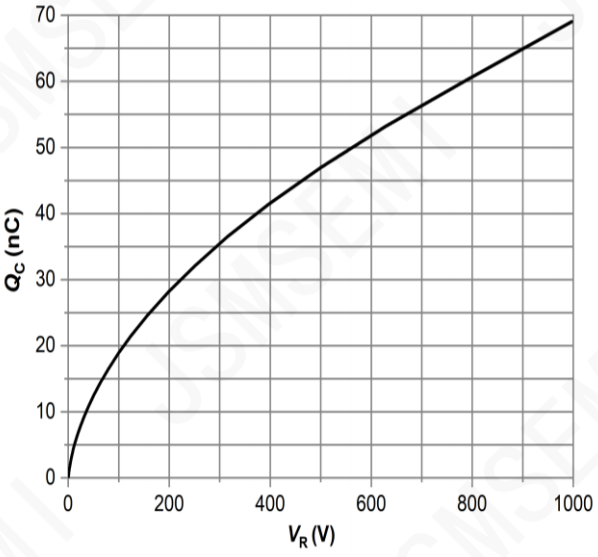


Figure 6: Total Capacitance Charge vs. Reverse Voltage

Typical Performance

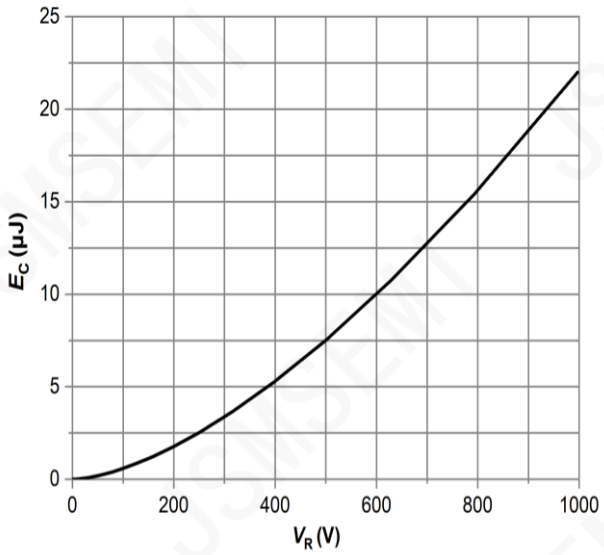


Figure 7:Typical Capacitance StoredEnergy

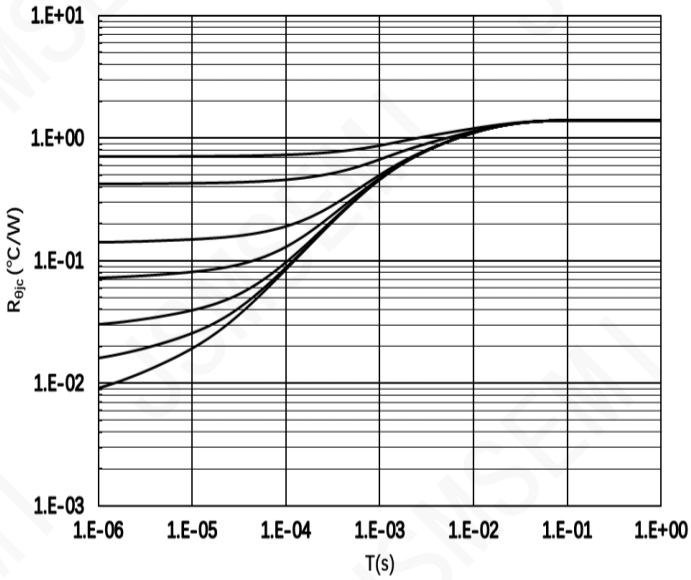
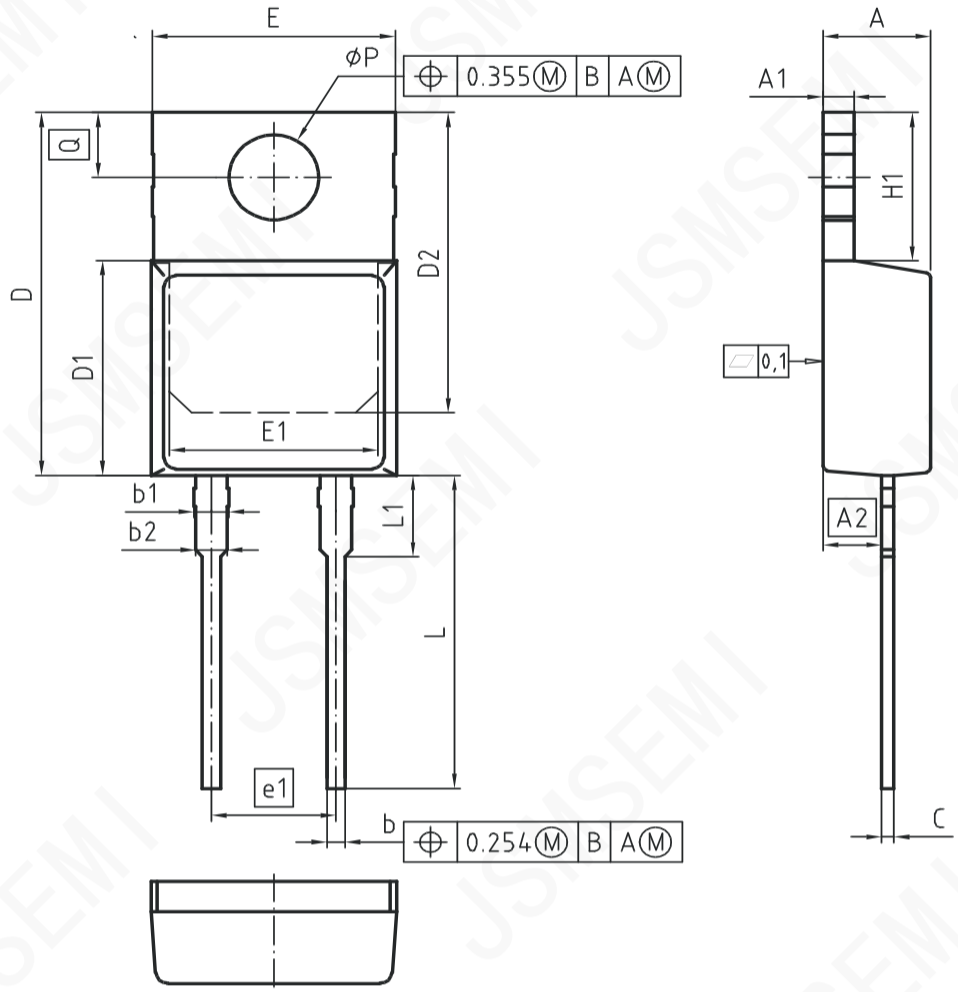


Figure 8:Transient Thermal Impedance

Package Dimensions

(TO-220-2 Package)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.50	0.169	0.177
A1	1.17	1.37	0.046	0.054
A2	2.30	2.50	0.091	0.098
b	0.65	0.85	0.026	0.033
b1	1.19	1.69	0.047	0.066
b2	1.19	1.39	0.047	0.055
c	0.40	0.60	0.016	0.024
D	15.35	15.95	0.604	0.628
D1	9.05	9.45	0.356	0.372
D2	12.30	13.05	0.484	0.514
E	9.80	10.20	0.386	0.402
E1	7.25	8.60	0.285	0.339
e1	5.08		0.200	
N	2		2	
H1	5.90	6.90	0.232	0.272
L	13.00	14.00	0.512	0.551
L1	3.30	3.70	0.130	0.146
øP	3.55	3.90	0.140	0.146
Q	2.60	3.00	0.102	0.118

Revision History

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

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