



General Description

This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.



TO-220-2L

Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_c
- Highly rugged due to better surge current
- Industrial standard quality and reliability



Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction



Part Number	Package	Marking
FFSP05120A	TO-220-2L	F0512Y9



AEC-Q101 Qualified

Maximum Ratings ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	
V_R	DC Blocking Voltage	1200	V	
I_F	Continuous Forward Current	18 9 5	A	$T_c = 25^\circ\text{C}$ $T_c = 135^\circ\text{C}$ $T_c = 153^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	31 23	A	$T_c = 25^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Wave}$ $T_c = 110^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Wave}$
I_{FSM}	Non-Repetitive Peak Forward Surge Current	45 35	A	$T_c = 25^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Wave}$ $T_c = 110^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Wave}$
$\int i^2 dt$	$i^2 dt$ value	10 6	A^2s	$T_c = 25^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Pulse}$ $T_c = 110^\circ\text{C}, t_p = 10 \text{ ms, Half Sine Pulse}$
P_{tot}	Power Dissipation	97 42	W	$T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C	



Electrical Characteristics

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V _F	-	1.4	1.7	V	I _F =5A
		-	2.0			T _j =25°C
Reverse Current	I _R	-	-	100	μA	V _R =1200V
		-	-	200		T _j =25°C
Total Capacitive Charge	Q _C	-	24	-	nC	T _j =25°C
		-	-	-		$Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	336	-	pF	T _j =25°C, f=1MHz
		-	23	-		V _R =0V
		-	18	-		V _R =400V
						V _R =800V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
R _{θJC}	Thermal Resistance from Junction to Case	1.55	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

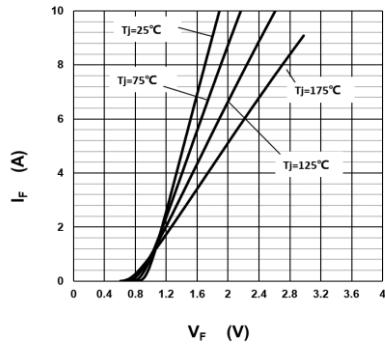


Fig 2: Reverse Characteristics

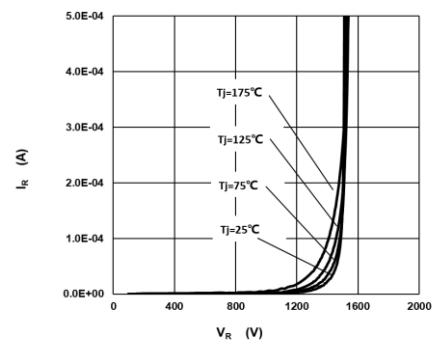




Fig 3: Current Derating

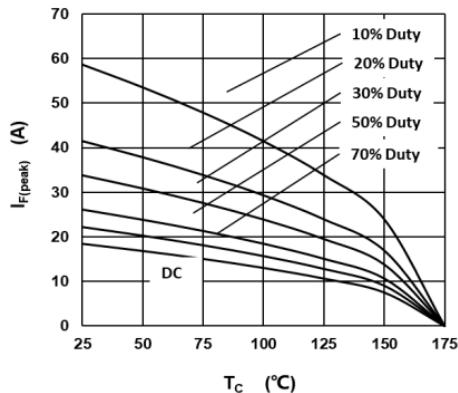


Fig 4: Power Derating

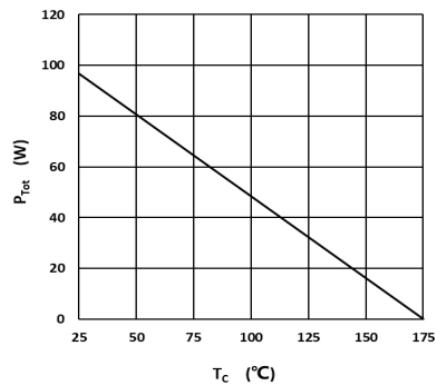


Fig 5: Capacitance vs. Reverse Voltage

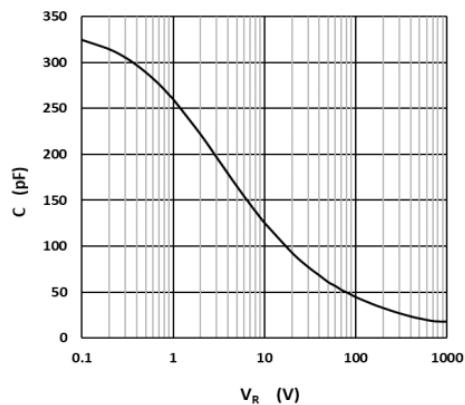


Fig 7: Typical Capacitance Stored Energy

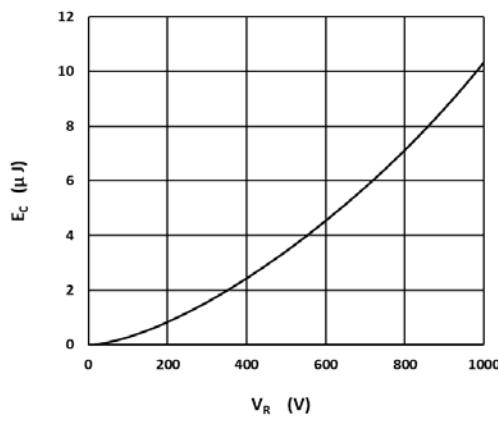


Fig 6: Reverse Charge vs. Reverse Voltage

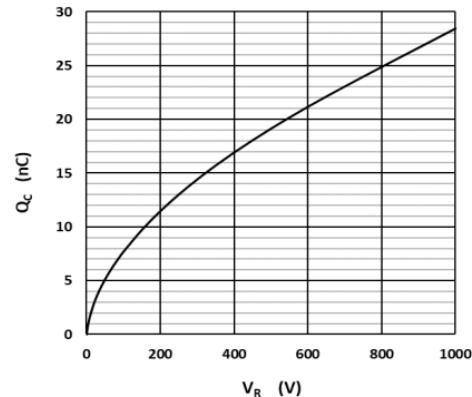
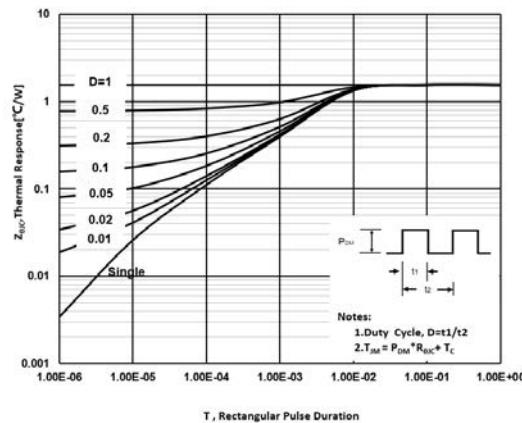
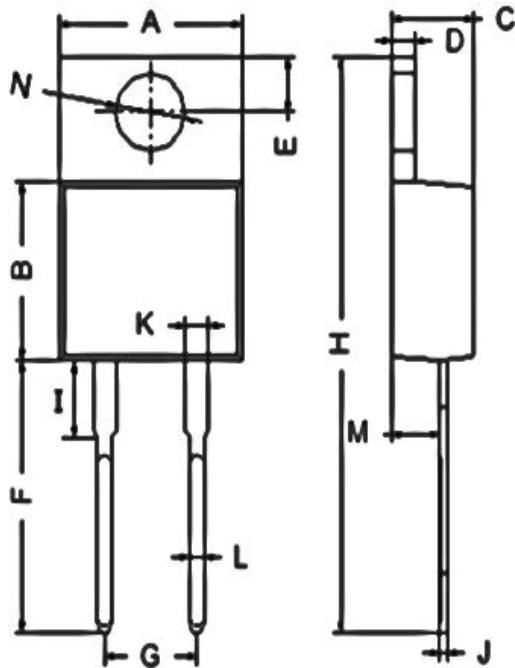


Fig 8: Transient Thermal Impedance





Package Information
TO-220-2L



POS	Millimeters	
	Min.	Max.
A	9.80	10.50
B	8.60	9.20
C	4.37	4.77
D	1.07	1.47
E	2.40	3.00
F	13.14	14.20
G	4.90	5.24
H	28.00	29.20
I	3.50	4.00
J	0.28	0.50
K	1.20	1.50
L	0.70	0.90
M	2.40	2.90
N	3.70	4.00



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