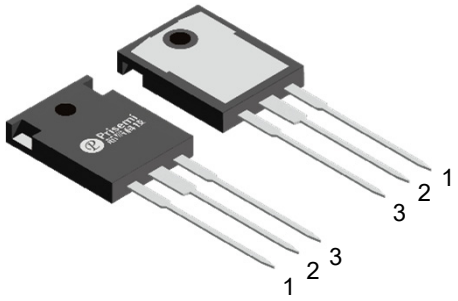
Prisemi®

PSICSTAF650V40N

Schoktty Barrier Diode

Feature

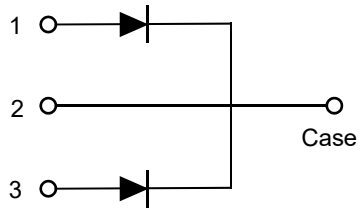
- Negligible reverse recovery
- Positive Temperature Coefficient
- Temperature-Independent Switching
- Fast switching
- Pb-free / RoHS compliant
- Low switching loss
- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability



TO-247-3L

Applications

- Solar inverters
- Uninterruptable power supplies
- Motor drives
- Power Factor Correction



Circuit Diagram

Absolute maximum rating@25℃

Parameter		Symbol	Value	Units
Repetitive Peak Reverse Voltage		V_{RRM}	650	V
Surge Peak Reverse Voltage		V_{RSM}	650	V
DC Peak Reverse Voltage		V_R	650	V
Continuous Forward Current	T_c=25℃	I_F	51/102	A
	T_c=135℃		26/52	
	T_c=153℃		20/40	
Repetitive Peak Forward Surge Current	T_c=25℃,t_p=10ms,Half Sine Pulse	I_{FRM}	102	A
	T_c=110℃,t_p=10ms,Half Sine Pulse		63	
Non-repetitive Forward Surge Current	T_c=25℃,t_p=10ms,Half Sine Pulse	I_{FSM}	150	A
	T_c=110℃,t_p=10ms,Half Sine Pulse		120	
i^2t Value	T_c=25℃,t_p=10ms	$\int i^2 dt$	112	A^2s
	T_c=110℃,t_p=10ms		72	
Power Dissipation	T_c=25℃	P_{tot}	150/300	W
	T_c=110℃		65/130	
Operating Junction Range		T_J	-55~+175	℃
Storage Temperature Range		T_{STG}	-55~+150	℃

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Forward Voltage	V_F	I_F = 20A, T_J=25℃	-	1.35	1.5	V
		I_F = 20A, T_J=175℃	-	1.65	1.8	
Reverse Current	I_R	V_R = 650V, T_J=25℃	-	2.0	40	μA
		V_R = 650V, T_J=175℃	-	10	100	
Total Capacitive Charge	Q_C	V_R = 400V	-	52	-	nC
Total Capacitance	C	V_R = 0V,f = 1MHz	-	1018	-	pF
		V_R = 200V,f = 1MHz	-	104	-	
		V_R = 400V,f = 1MHz	-	89	-	

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units
Thermal Resistance（Junction to case）	$R_{\theta JC}$	-	1.0/0.5	-	℃/W

Typical Characteristics

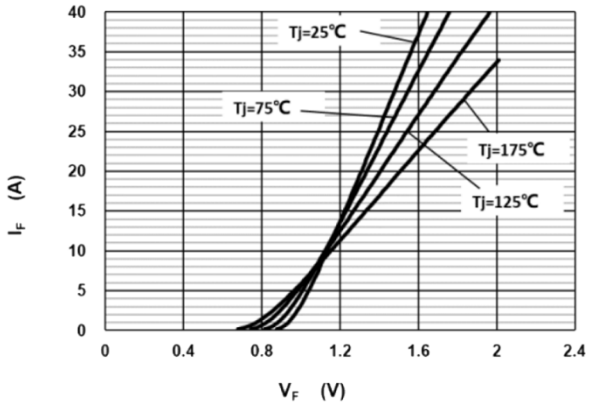


Fig.1 Forward Characteristics

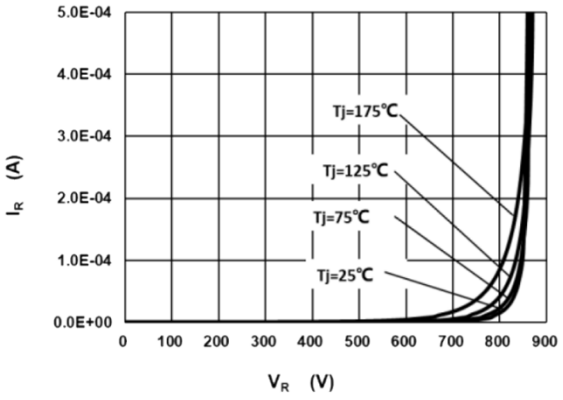


Fig.2 Reverse Characteristics

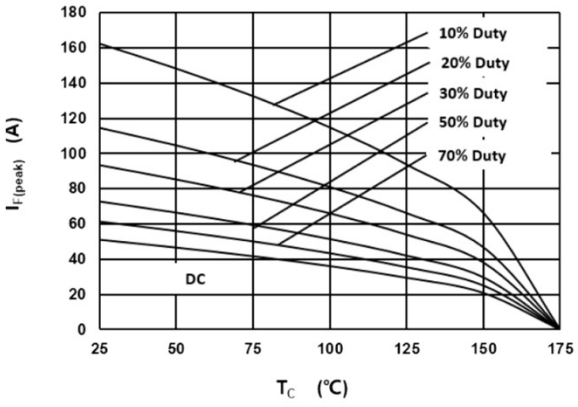


Fig.3 Current Derating

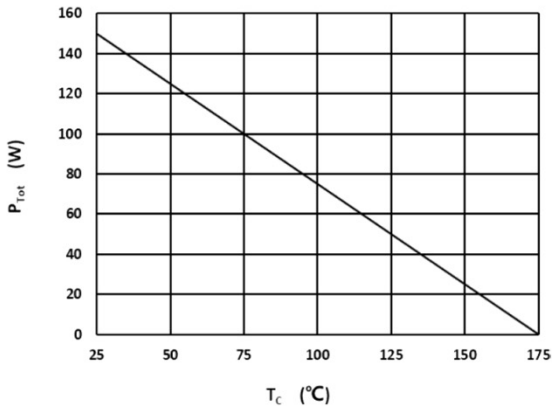


Fig.4 Power Derating

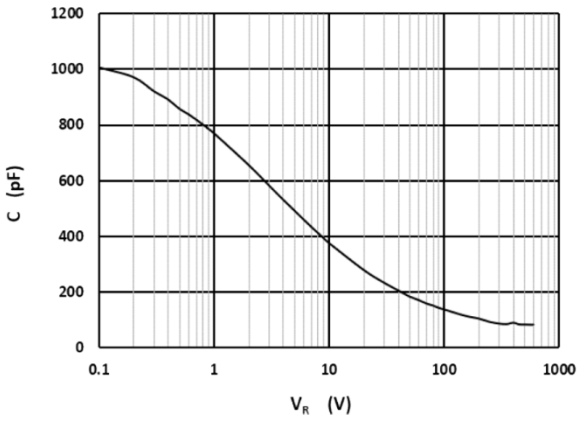


Fig.5 Capacitance vs. Reverse Voltage

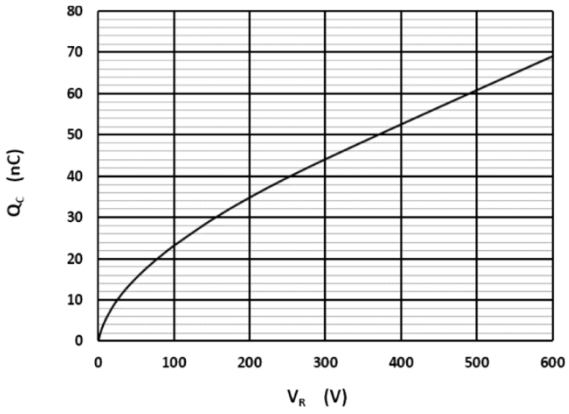


Fig.6 Capacitance Charge vs. Reverse Voltage

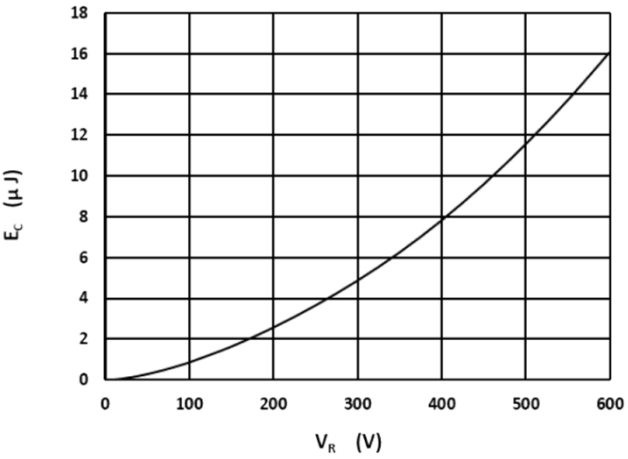


Fig.7 Capacitance Stored Energy

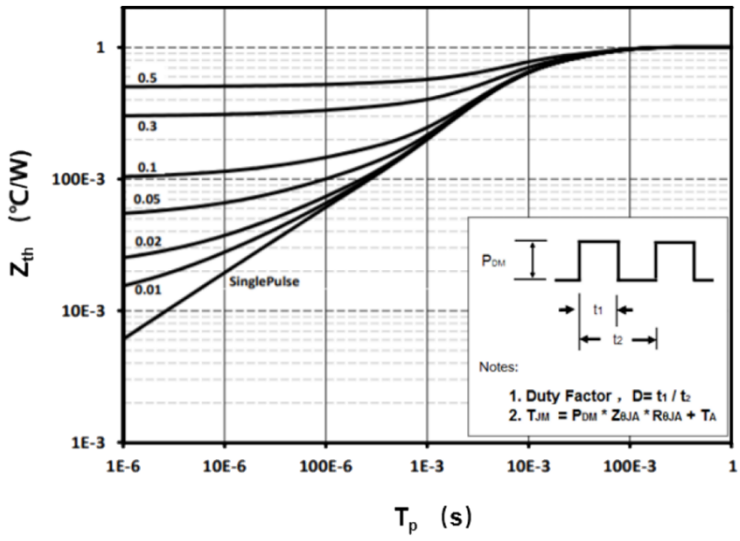
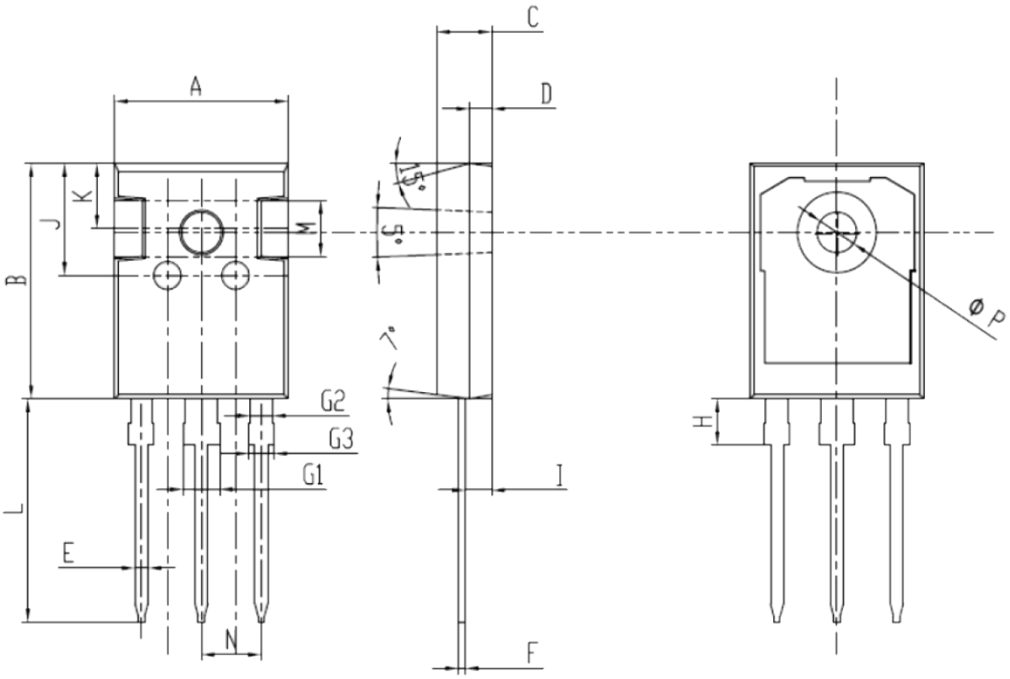


Fig.8 Transient Thermal Impedance

Product dimension (TO-247-3L)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	15.70	15.90	0.618	0.626
B	20.90	21.10	0.823	0.831
C	4.90	5.10	0.193	0.201
D	1.90	2.10	0.075	0.083
E	1.10	1.30	0.043	0.051
F	0.45	0.75	0.018	0.030
G1	3.00	3.20	0.118	0.126
G2	1.85	2.15	0.073	0.085
G3	2.00	2.20	0.079	0.087
H	4.00	4.30	0.157	0.169
I	2.30	2.50	0.091	0.098
J	9.90	10.10	0.390	0.398
K	5.70	5.90	0.224	0.232
L	19.80	20.20	0.780	0.795
M	4.85	5.15	0.191	0.203
N	5.286	5.586	0.208	0.220
φP	3.40	3.60	0.134	0.142

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