30A, 600V High Efficient Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Lead for automated placement
- Low switching loss
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

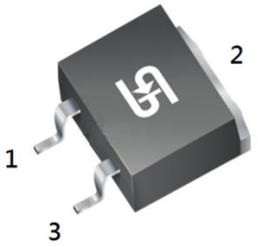
- On Board Charger

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	30	A
V_{RRM}	600	V
I_{FSM}	200	A
$T_{J\ MAX}$	150	°C
Package	D^2PAK-D	
Configuration	Single die	

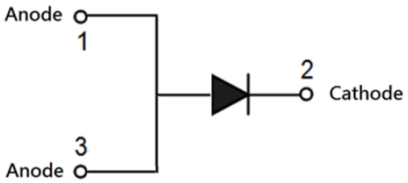
Pb-Free RoHS COMPLIANT HALOGEN FREE

MECHANICAL DATA

- Case: D^2PAK-D
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.40g (approximately)



D^2PAK-D



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**UGS30JH**	**UNIT**
Marking code on the device			UGS30JH	
Repetitive peak reverse voltage		V_{RRM}	600	V
Reverse voltage, total rms value		$V_{R(RMS)}$	420	V
Forward current		I_F	30	A
Surge peak forward current, single half sine-wave superimposed on rated load	t = 1.0ms	I_{FSM}	320	A
	t = 8.3ms	I_{FSM}	200	A
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	2.2	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	11	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	1.5	°C/W

Thermal Performance Note: Units mounted on heatsink 4”x 6”x 0.25" Al-plate

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 15A, T_J = 25°C	V_F	1.49	-	V
	I_F = 30A, T_J = 25°C		1.71	2.00	V
	I_F = 15A, T_J = 125°C		1.16	-	V
	I_F = 30A, T_J = 125°C		1.45	1.82	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		-	200	μA
Junction capacitance	1MHz, V_R = 4.0V	C_J	128	-	pF
Reverse recovery time	I_F = 0.5A, I_R = 1.0A I_{rr} = 0.25A	t_{rr}	-	50	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
UGS30JH	D^2PAK-D	800 / Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

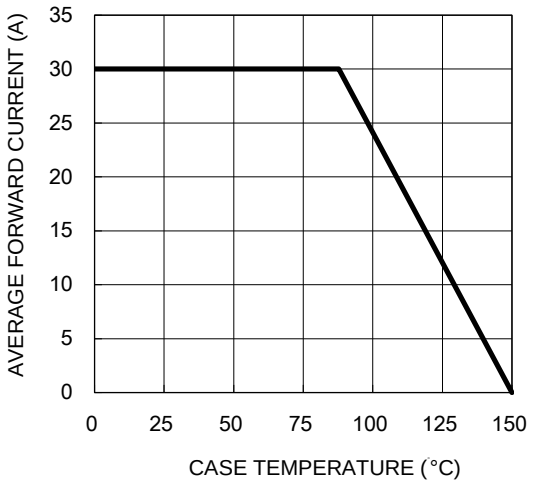


Fig.2 Typical Junction Capacitance

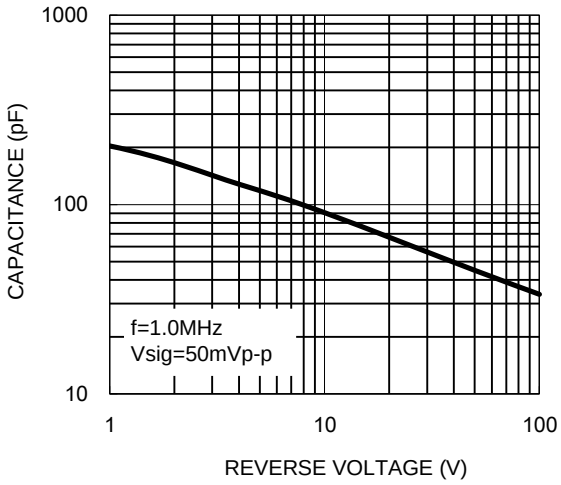


Fig.3 Typical Reverse Characteristics

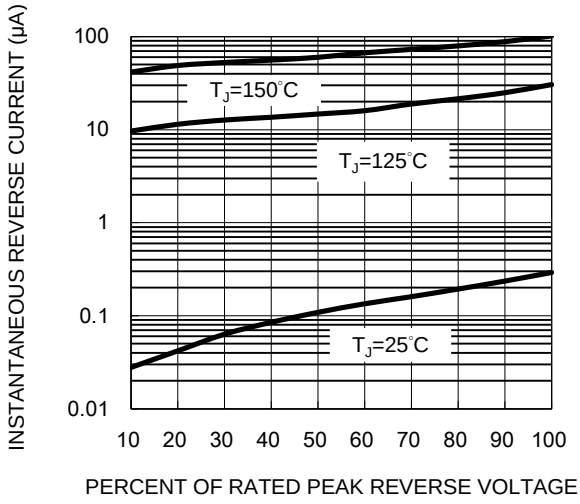


Fig.4 Typical Forward Characteristics

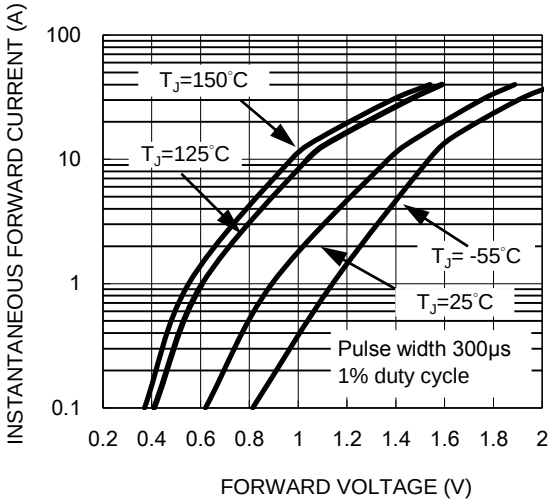
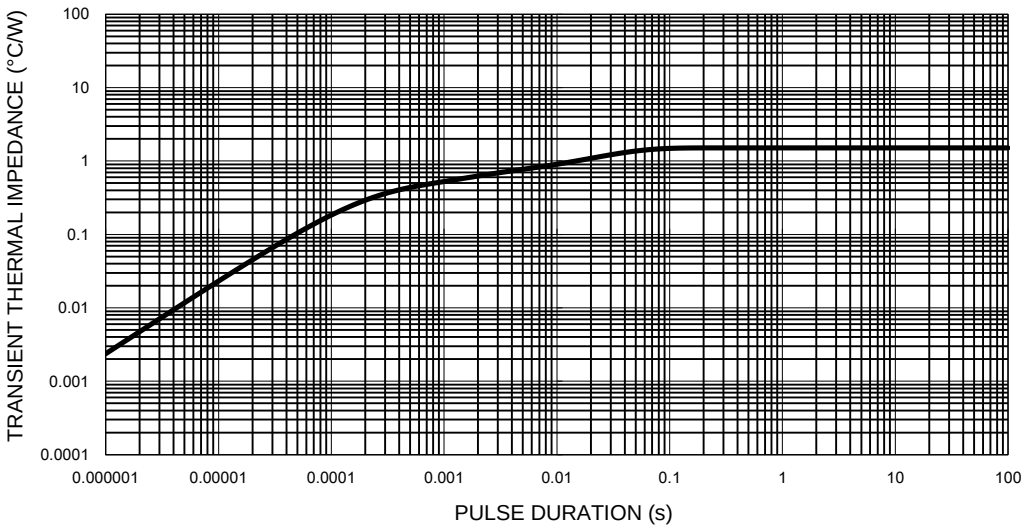
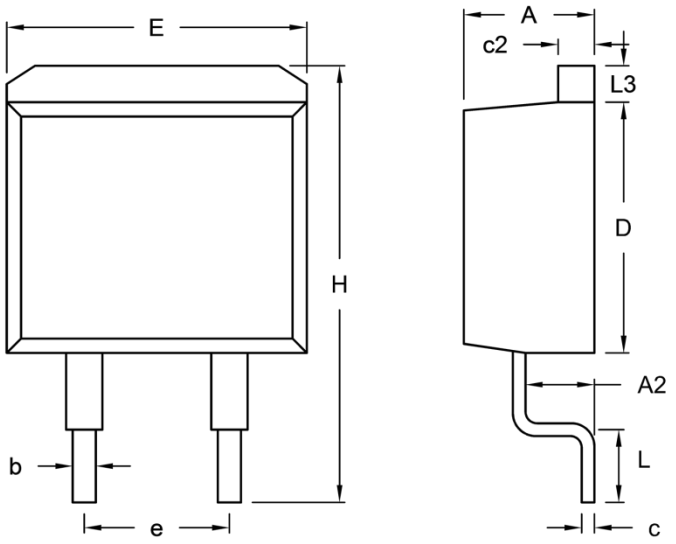


Fig.5 Typical Transient Thermal Impedance



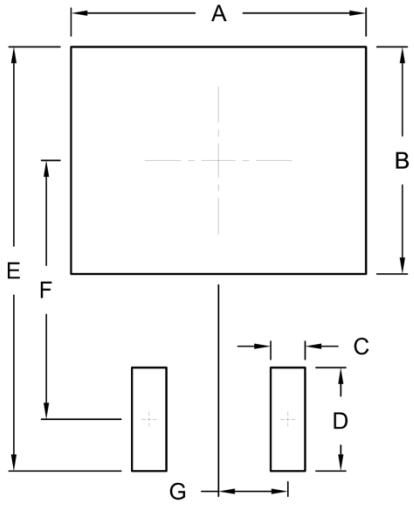
PACKAGE OUTLINE DIMENSIONS

D^2PAK-D



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.44	4.70	0.175	0.185
A2	2.03	2.79	0.080	0.110
b	0.68	0.94	0.027	0.037
c	0.36	0.53	0.014	0.021
c2	1.14	1.40	0.045	0.055
D	8.25	9.25	0.325	0.364
E	-	10.50	-	0.413
e	4.82	5.34	0.190	0.210
H	14.60	15.88	0.575	0.625
L	2.29	2.79	0.090	0.110
L3	1.14	1.40	0.045	0.055

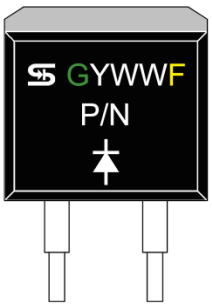
SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	10.80	0.425
B	8.30	0.327
C	1.26	0.050
D	3.78	0.149
E	15.50	0.610
F	9.46	0.372
G	2.54	0.100

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

MARKING DIAGRAM



P/N = Marking Code
G = Green Compound
YWW = Date Code
F = Factory Code

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