3A, 400V ESD Capability Rectifier

FEATURES

- AEC-Q101 qualified
- High ESD capability
- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	3	A
V_{RRM}	400	V
I_{FSM}	100	A
$T_{J\ MAX}$	175	°C
Package	DO-214AB (SMC)	
Configuration	Single die	

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- General purpose

MECHANICAL DATA

- Case: DO-214AB (SMC)
- 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: Indicated by cathode band
- Weight: 0.210g (approximately)

DO-214AB (SMC)

SOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**TSD3GH**	**UNIT**
Marking code on the device		TSD3G	
Repetitive peak reverse voltage	V_{RRM}	400	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	V
Forward current	I_F	3	A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	100	A
Junction temperature	T_J	- 55 to +175	°C
Storage temperature	T_{STG}	- 55 to +175	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	21	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	59	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	22	°C/W

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 1.5A, T_J = 25°C	V_F	0.85	0.95	V
	I_F = 3.0A, T_J = 25°C		0.89	1.00	V
	I_F = 1.5A, T_J = 125°C		0.72	0.90	V
	I_F = 3.0A, T_J = 125°C		0.76	1.00	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		-	50	μA
Junction capacitance	1MHz, V_R = 4.0V	C_J	45	-	pF

Notes:

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

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS (T_A = 25°C unless otherwise noted)

Standard	Test Type	Test Conditions	Symbol	Class	Value	Typical
AEC-Q101-001	Human body model(contact mode)	C=100pF,R=1.5kΩ	Vc	H3B	≥8kV	N/A
IEC 61000-4-2	Contact mode	C=150pF,R=330Ω		4	≥8kV	25kV
	Air-discharge mode	C=150pF,R=330Ω		4	≥15kV	30kV
ISO 10605	Contact mode	C=330pF,R=330Ω		L4	≥15kV	25kV
	Air-discharge mode	C=330pF,R=330Ω		L4	≥25kV	30kV

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSD3GH	DO-214AB (SMC)	3,000 / Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

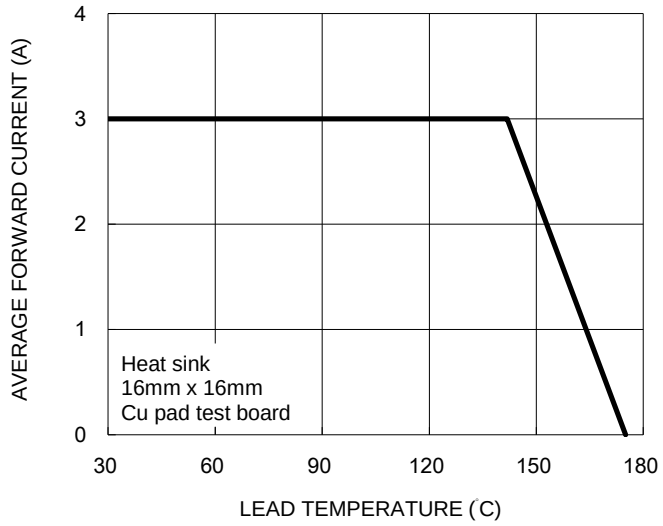


Fig.2 Typical Junction Capacitance

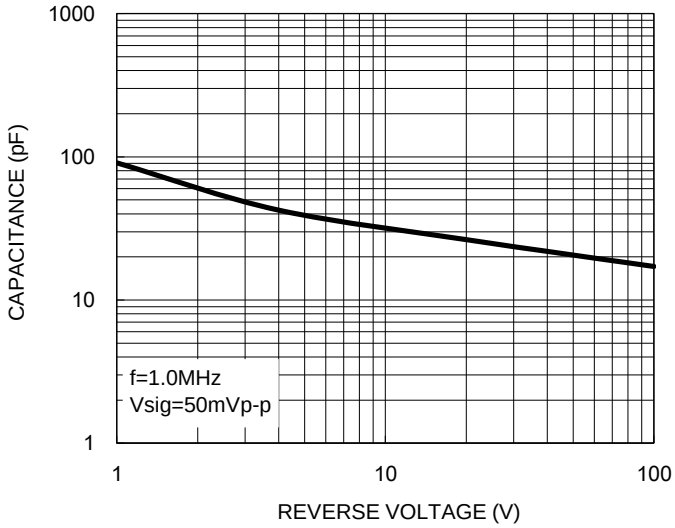


Fig.3 Typical Reverse Characteristics

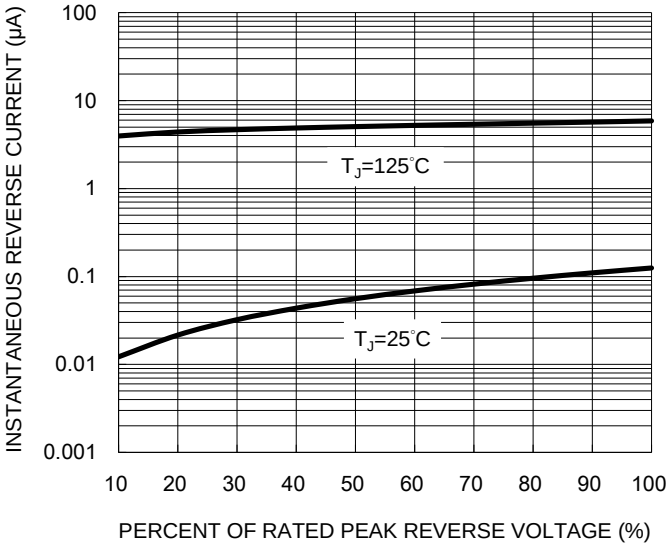
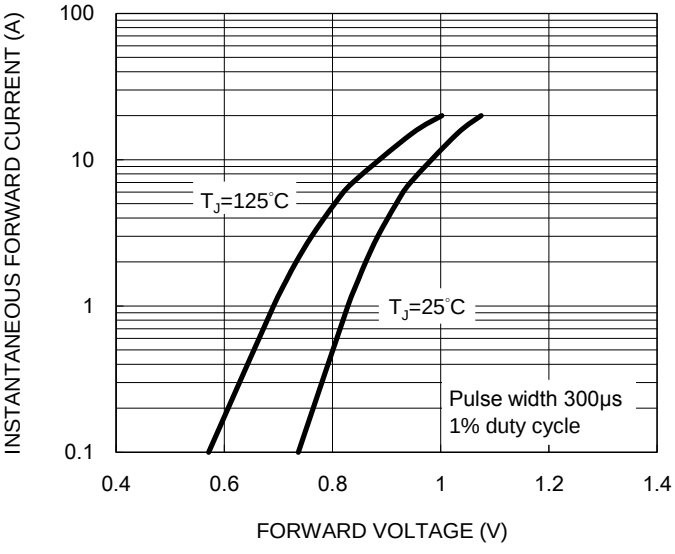
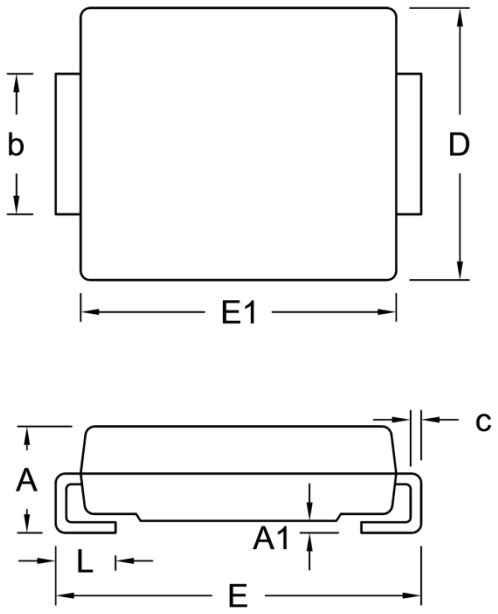


Fig.4 Typical Forward Characteristics



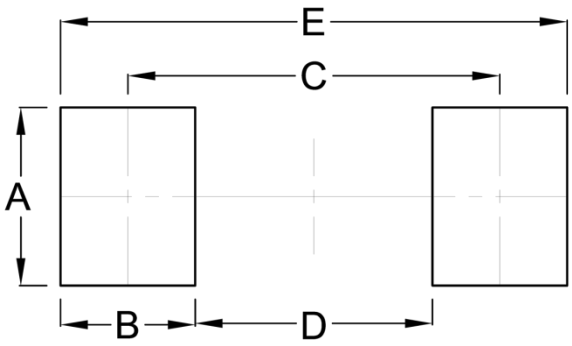
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM

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

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