

2A, 200V - 600V Surface Mount Super Fast Rectifiers

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Super fast recovery time for high efficiency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication.

MECHANICAL DATA

- **Case:** DO-214AA (SMB)
- Molding compound, UL flammability classification rating 94V-0
- Moisture sensitivity level: level 1, per J-STD-020
- Part No. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- **Terminal:** Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- **Polarity:** Indicated by cathode band
- **Weight:** 0.09 g (approximately)



DO-214AA (SMB)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	2	A
V_{RRM}	200-600	V
I_{FSM}	50	A
V_F at $I_F=1A$	1.7	V
T_{JMAX}	150	°C
Package	DO-214AA (SMB)	
Configuration	Single dice	

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	ES2LD	ES2LG	ES2LJ	UNIT
Marking code on the device		ES2LD	ES2LG	ES2LJ	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Maximum RMS voltage	V_{RMS}	140	280	420	V
Maximum DC blocking voltage	V_{DC}	200	400	600	V
Maximum average forward rectified current	$I_{F(AV)}$	2			A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50			A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150			°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Lead Thermal Resistance	$R_{\theta JL}$	35	°C/W
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	80	°C/W
Junction to Case Thermal Resistance	$R_{\theta JC}$	25	°C/W

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Maximum instantaneous forward voltage (Note 1)	ES2LD	$I_F = 1\text{A}$	V_F	-	0.95	V
	ES2LG			-	1.3	
	ES2LJ			-	1.7	
Maximum reverse current @ rated V_R (Note 2)		$T_J = 25^\circ\text{C}$	I_R	-	10	uA
		$T_J = 125^\circ\text{C}$		-	350	
Junction capacitance	ES2LD	1 MHz $V_R = 4.0\text{V}$	C_J	25	-	pF
	ES2LG			20		
	ES2LJ			20		
Reverse recovery time		$I_F = 0.5\text{A}$ $I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	t_{rr}	-	35	nS

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX *	PACKAGE	PACKING
ES2LX (Note1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4			3,000 / 13" Paper reel
		M4			3,000 / 13" Plastic reel

Note 1: "x" defines voltage from 200V (ES1LD) to 600V (ES1LJ)

*: G is optional available.

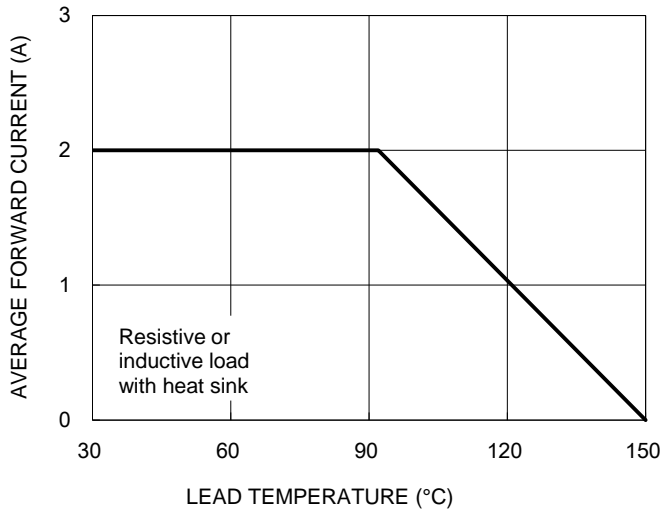
EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
ES2LDHR5G	ES2LD	H	R5	G	AEC-Q101 qualified Green compound

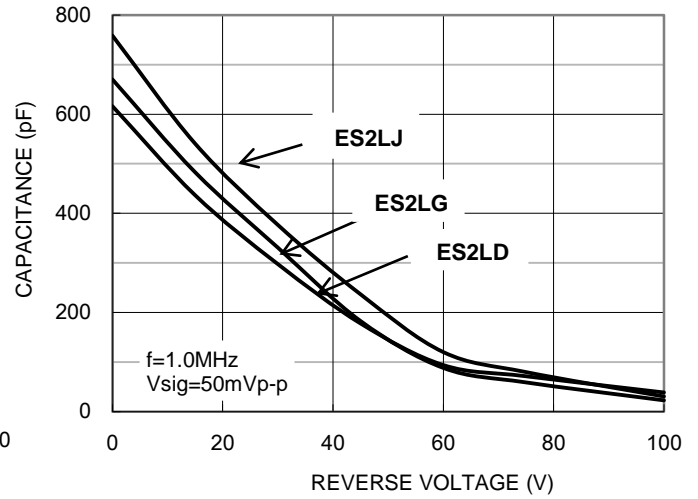
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

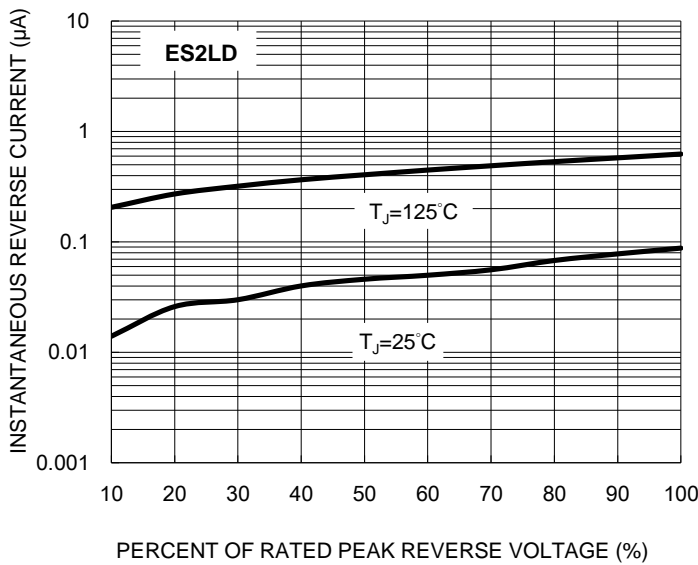
Forward Current Derating Curve



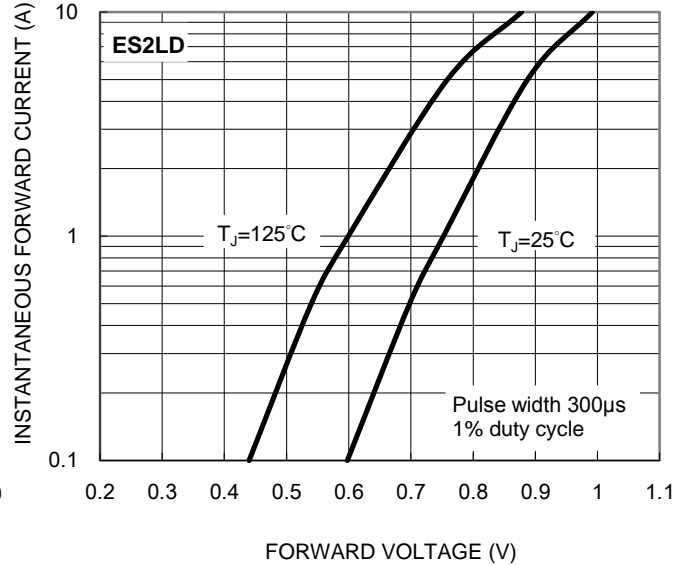
Typical Junction Capacitance



TYPICAL REVERSE CHARACTERISTICS

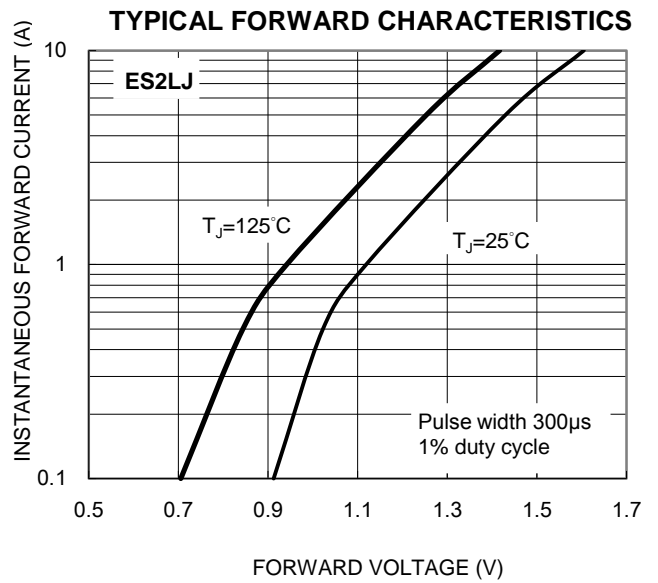
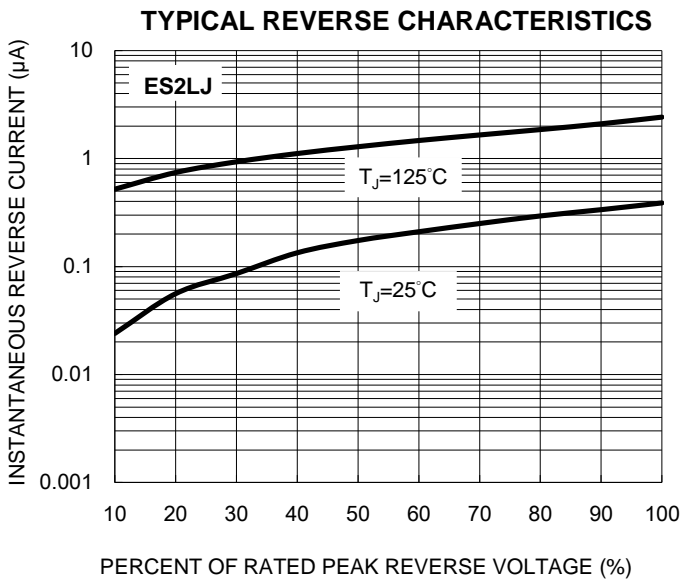
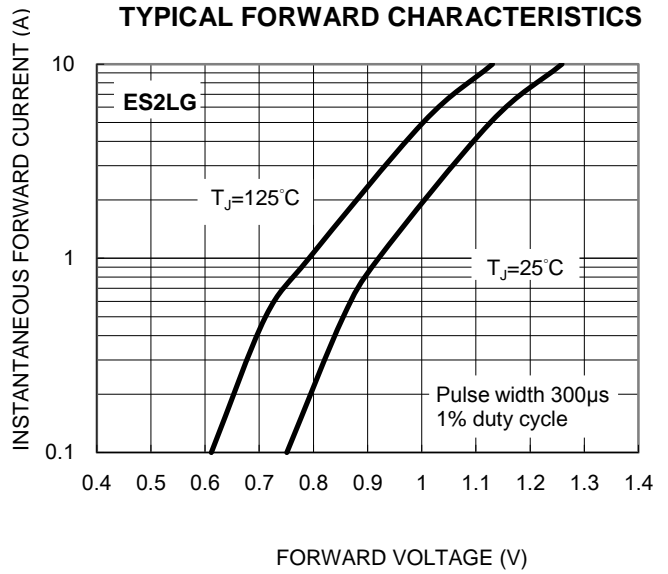
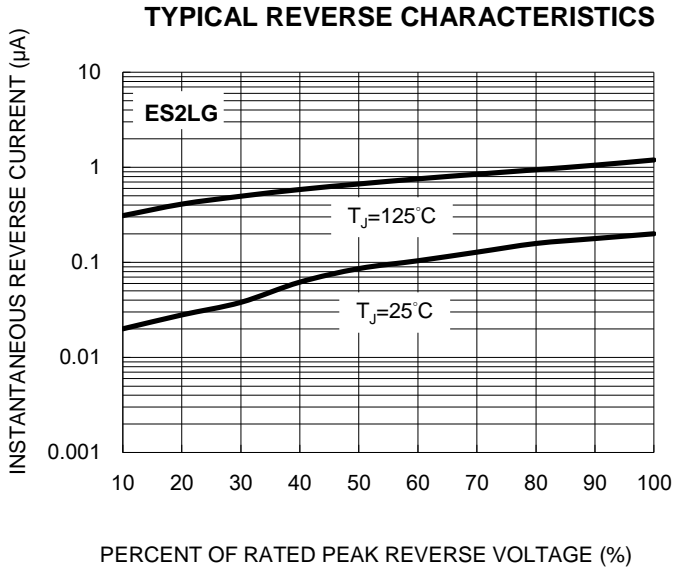


TYPICAL FORWARD CHARACTERISTICS



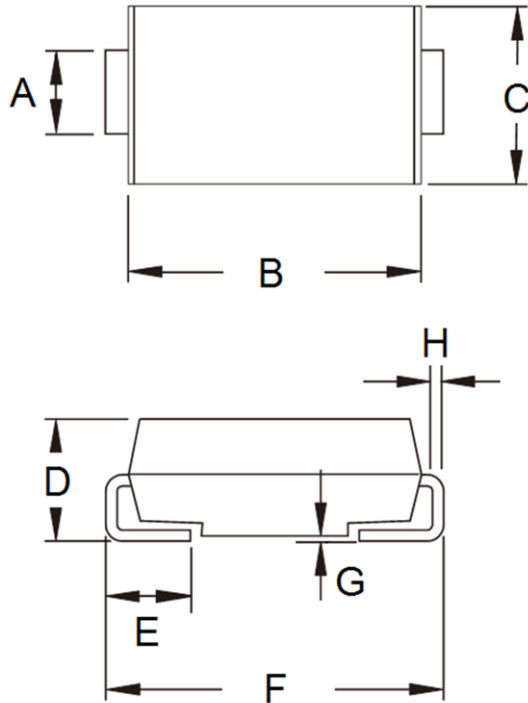
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)



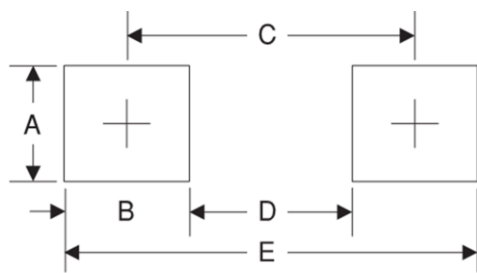
PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

DO-214AA (SMB)



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.10	0.077	0.083
B	4.25	4.75	0.167	0.187
C	3.48	3.73	0.137	0.147
D	1.99	2.61	0.078	0.103
E	0.90	1.41	0.035	0.056
F	5.10	5.30	0.201	0.209
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT (Unit: Millimeters)



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

MARKING DIAGRAM



- P/N = Specific Device Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

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