

ES3D-ES3J(LS)

SURFACE MOUNT SUPER FAST RECTIFIERS

REVERSE VOLTAGE – 200 to 600 Volts FORWARD CURRENT – 3.0 Ampere

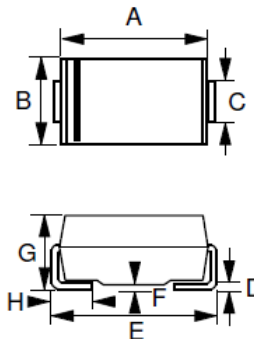
FEATURES

- Glass passivated chip
- Super fast switching for high efficiency
- For surface mounted applications
- Low forward voltage drop and high current capability
- Low reverse leakage current
- Qualified according to AEC-Q101 Rev_C
- Available in "Green" Package: SMC
 - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
 - **Halogen and Antimony Free. "Green" Device (Note 3)**

MECHANICAL DATA

- Case: Molded plastic
- Case Material: Molding compound, UL Flammability classification 94V-0, "Halogen-free".
- Polarity: Color band denotes cathode
- Weight: 0.021 grams

SMC



SMC		
DIM	MIN	MAX
A	6.60	7.11
B	5.59	6.22
C	2.92	3.18
D	0.05	0.31
E	7.75	8.13
F	0.05	0.20
G	2.01	2.50
H	0.76	1.52

All dimension in millimeter

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

PARAMETER	SYMBOL	ES3D	ES3J	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	200	600	V
Maximum RMS Voltage	V_{RMS}	140	420	V
Maximum DC Blocking Voltage	V_{DC}	200	600	V
Maximum Average Forward Rectified Current @ $T_L=110^\circ\text{C}$	$I_{(AV)}$	3.0		A
Peak Forward Surge Current 8.3ms single half sine-wave super imposed on rated load (JEDEC METHOD)	I_{FSM}	100		A
Peak Forward Surge Current 1ms single half sine-wave @ $T_J=25^\circ\text{C}$	I_{FSM}	200		A
I^2t Rating for fusing ($3\text{ms} \leq t \leq 8.3\text{ms}$)	I^2t	41.5		A^2S
Maximum forward Voltage at 3.0A DC	V_F	0.92	1.30	V
Maximum DC Reverse Current at Rated DC Blocking Voltage @ $T_J=25^\circ\text{C}$ @ $T_J=125^\circ\text{C}$	I_R	10 500		μA
Maximum Reverse Recovery Time (Note 4)	t_{rr}	25 20 (Typ.)	35 30 (Typ.)	ns
Typical Junction Capacitance (Note 5)	C_T	45		pF
Typical Thermal Resistance (Note 6)	R_{thJL}	10	15	$^\circ\text{C/W}$
	R_{thJA}	50		
Operating Temperature Range	T_J	-55 to + 150		$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150		$^\circ\text{C}$

Note :

REV-9 Oct-2021, KSGC01

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Reverse Recovery Test Conditions : $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{rr}=0.25\text{A}$.
5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
6. Thermal Resistance junction to Lead and Ambient.

RATING AND CHARACTERISTIC CURVES
ES3D-ES3J(LS)

FIG.1 - FORWARD CURRENT DERATING CURVE

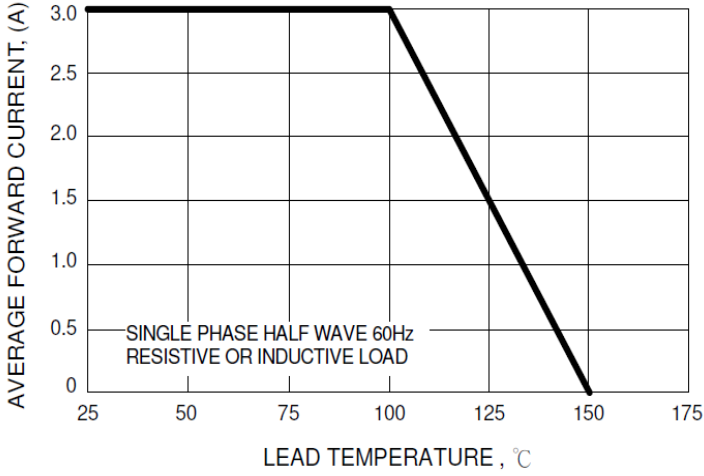


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

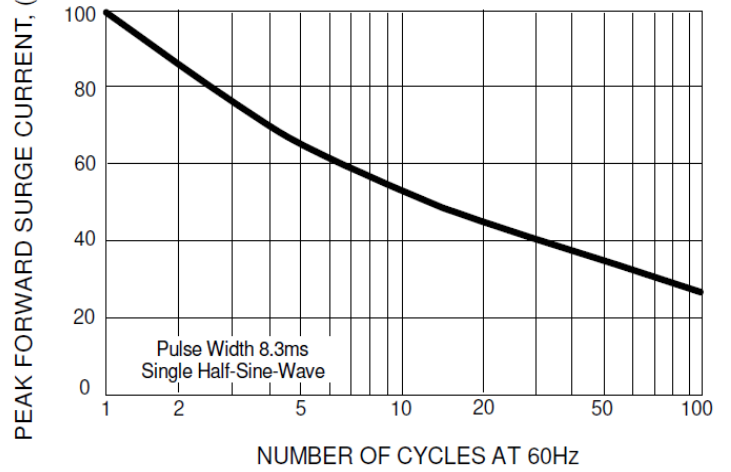


FIG.3 - TYPICAL FORWARD CHARACTERISTICS

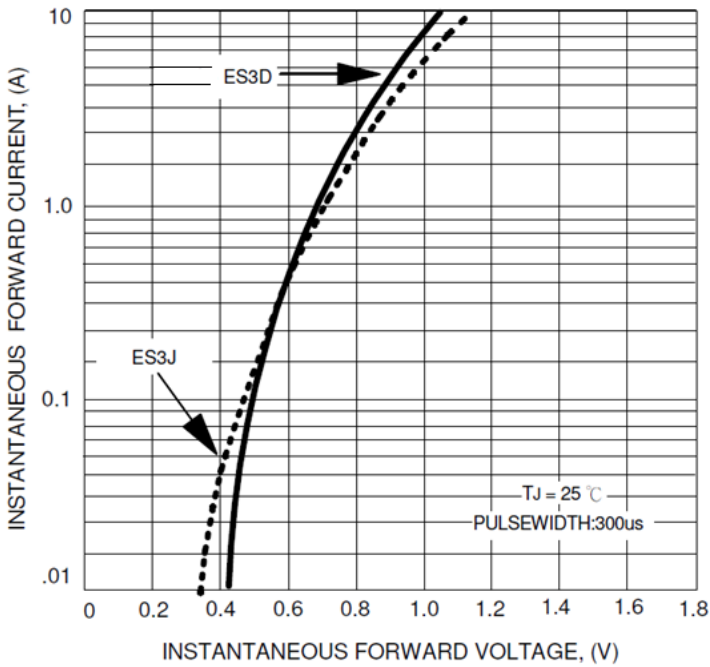
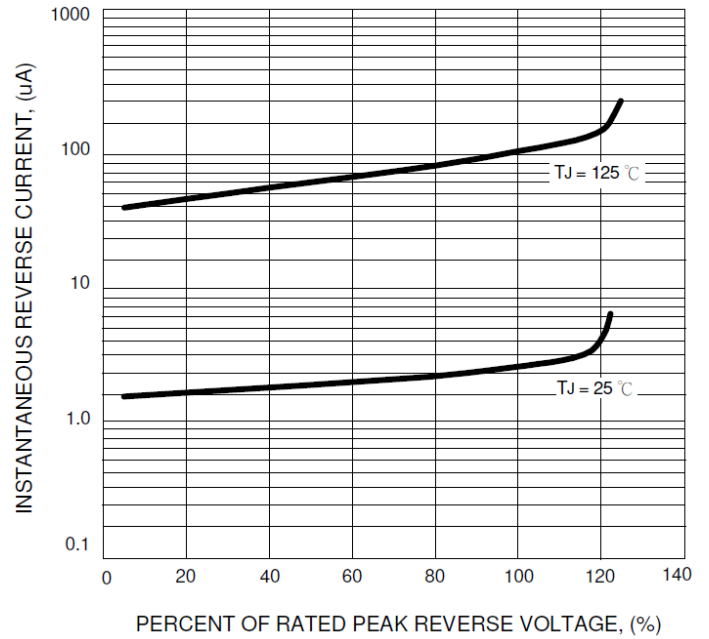


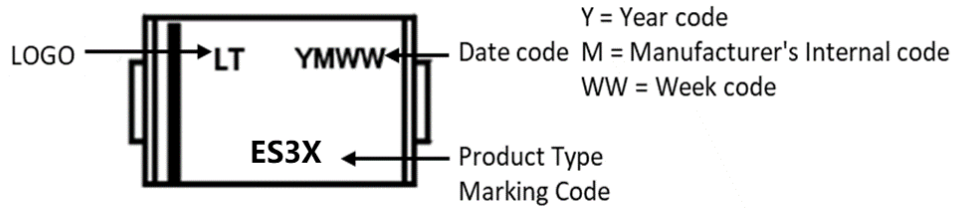
FIG.4 - TYPICAL REVERSE CHARACTERISTICS



Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
ES3D_HF	SMC	3000	Reel
ES3J_HF	SMC	3000	Reel

Marking Information:



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