GOOD-ARK SEMICONDUCTOR

HS1A thru HS1M

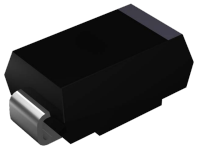
Ultrafast Recovery Rectifiers

Reverse Voltage 50V to 1000V Forward Current 1.0 A

Features

- Glass passivated junction chip
- For surface mounted application
- Low forward voltage drop
- Low profile package
- Built-in stain relief, ideal for automatic placement
- Fast switching for high efficiency
- High temperature soldering: 260°C/10 seconds at terminals
- Plastic material used carries underwriters laboratory classification 94V-0

RoHS COMPLIANT



DO-214AC (SMA)

Mechanical Data

- Cases: Molded plastic
- Terminals: Solder plated
- Polarity: Indicated by cathode band
- Weight: 0.064 gram typical

Maximum Ratings & Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter		Symbol	HS1A	HS1B	HS1D	HS1F	HS1G	HS1J	HS1K	HS1M	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	50	100	200	300	400	600	800	1000	V
Maximum RMS Voltage		V_{RMS}	35	70	140	210	280	420	560	700	V
Maximum DC Blocking Voltage		V_{DC}	50	100	200	300	400	600	800	1000	V
Maximum Average Forward Rectified Current See Fig.1		$I_{(AV)}$	1.0								A
Peak Forward Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load		I_{FSM}	30								A
Maximum Instantaneous Forward Voltage @ 1.0A		V_F	1.0				1.3	1.7			V
Maximum DC Reverse Current at Rated DC Blocking Voltage	T_A =25°C	I_R	5.0								uA
	T_A =125°C		150								
Maximum Reverse Recovery Time [1]		t_{rr}	50					75			nS
Typical Junction Capacitance [2]		C_J	20					15			pF
Operating Junction Temperature Range		T_J	-55 to +150								°C
Storage Temperature Range		T_{STG}	-55 to +150								°C

Notes:

1. Reverse recovery test conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
2. Measured at 1MHz and applied reverse voltage of 4.0V

Thermal Characteristics

Parameter	Symbol	HS1A	HS1B	HS1D	HS1F	HS1G	HS1J	HS1K	HS1M	Unit
Typical Thermal Resistance [3]	$R_{\theta JA}$	72								°C/W
	$R_{\theta JC}$	33								
	$R_{\theta JL}$	7								

Notes:

3. The thermal resistance from junction to ambient, case and lead, mounted on FR-4 P.C.B with 5×5mm copper pads.

Ratings and Characteristics Curves (T_A=25°C unless otherwise noted)

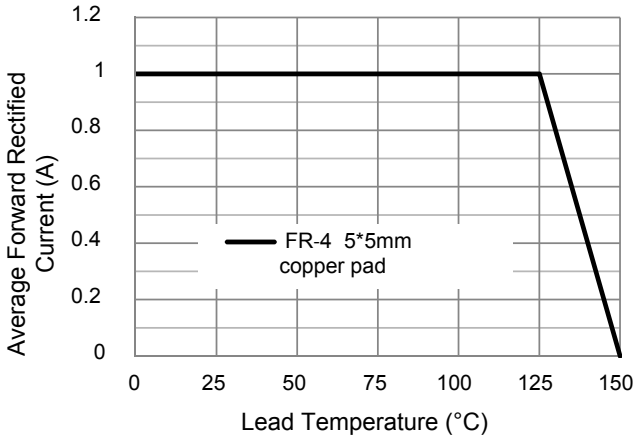


Figure 1. Forward Current Derating Curve

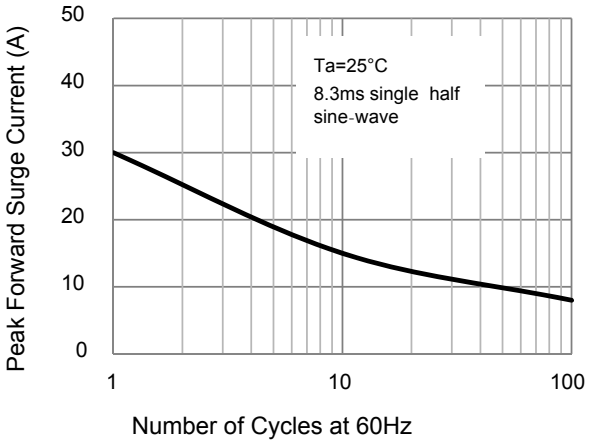


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

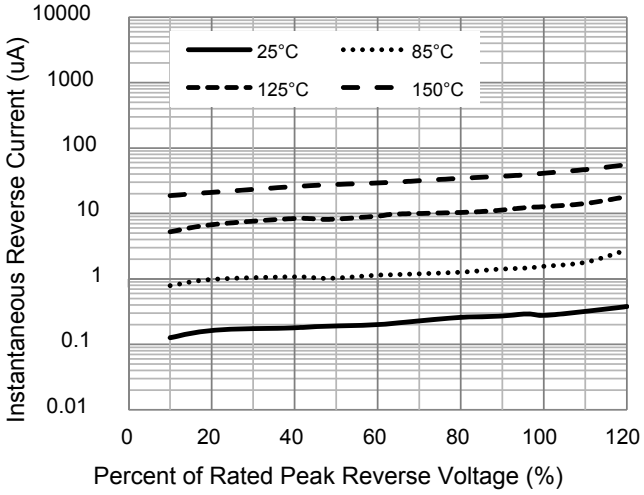


Figure 3. Typical Reverse Characteristics

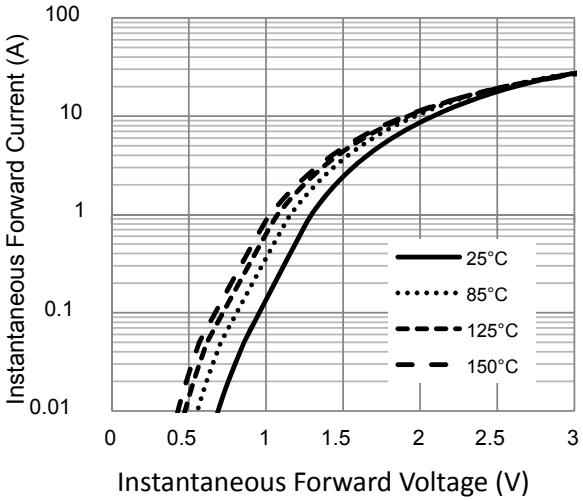


Figure 4. Typical Forward Characteristics (HS1J-M)

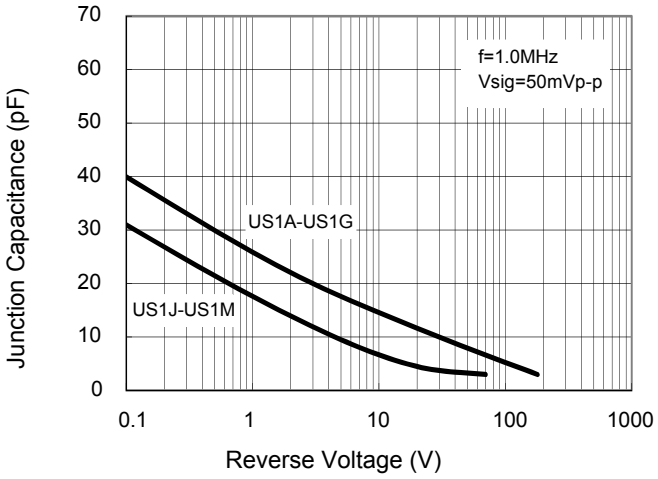


Figure 5. Typical Junction Capacitance

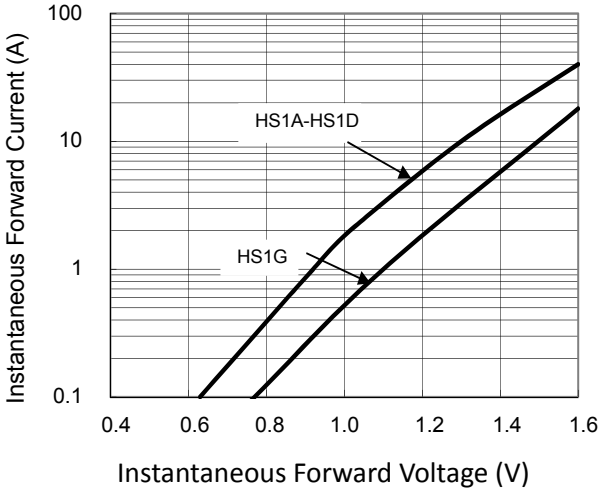
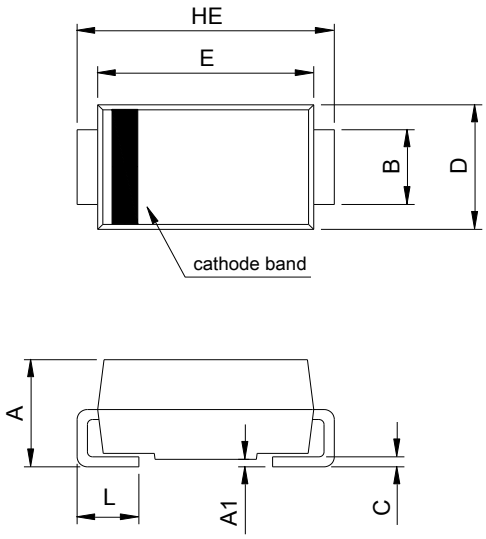


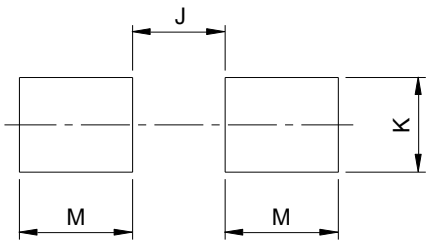
Figure 6. Typical Forward Characteristics (HS1A-G)

Package Outline Dimensions DO-214AC (SMA)



SMA (DO-214AC)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.90	2.30	0.075	0.091
A1	0.00	0.20	0.000	0.008
B	1.25	1.65	0.049	0.065
C	0.15	0.31	0.006	0.012
D	2.35	2.90	0.093	0.114
E	3.99	4.60	0.157	0.181
HE	4.80	5.30	0.189	0.209
L	0.76	1.52	0.030	0.060

Recommended Pad Layout



Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	2.20	-	0.087
K	1.72	-	0.068	-
M	2.00	-	0.079	-