N-Channel 100V (D-S) Power MOSFET

Features

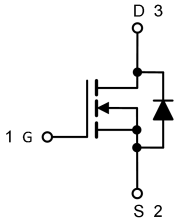
- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant



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Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)				
Parameter		**Symbol**	**Value**	**Unit**
Drain Source Voltage		V_{DS}	100	V
Gate Source Voltage		V_{GS}	±20	V
Drain Current, Continuous V_{GS}=10V	T_C=25°C	I_D	0.17	A
Drain Current, Pulsed *(Note 1)*		I_{DM}	0.68	A
Power Dissipation	T_C=25°C	P_D	225	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Single pulse; t_p ≤ 1us.

Thermal Characteristics			
Parameter	**Symbol**	**Max**	**Unit**
Thermal Resistance Junction to Ambient *(Note 2)*	R_{thJA}	556	°C/W

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

Electrical Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	--	--	15	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=1mA	0.8	--	2	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±50	nA
Drain-Source On-state Resistance *(Note 3)*	$R_{DS(on)}$	V_{GS}=10V, I_D=100mA	--	5	6	Ω
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_G=50Ω	--	20	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	40	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz	--	20	--	pF
Output Capacitance	C_{oss}		--	9	--	
Reverse Transfer Capacitance	C_{rss}		--	4	--	

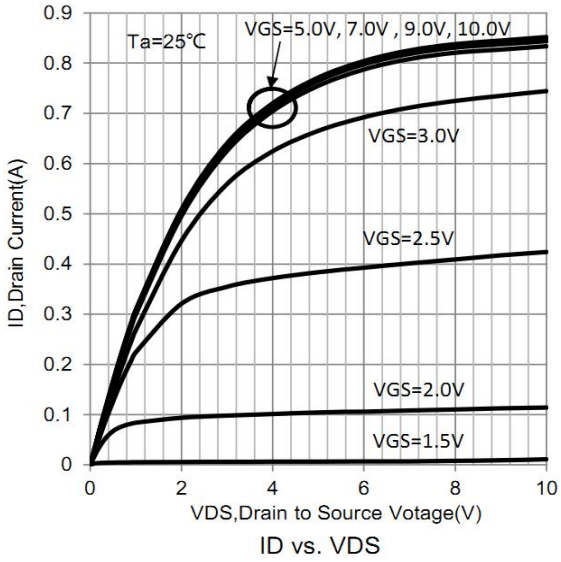
Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	0.17	A
Diode Forward Voltage *(Note 3)*	V_{SD}	I_F=0.34A, V_{GS}=0V	--	--	1.3	V

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

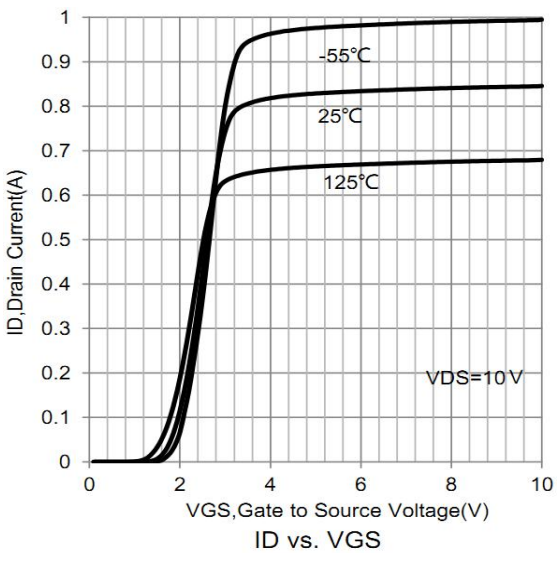
Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

Fig.1 - Output Characteristics



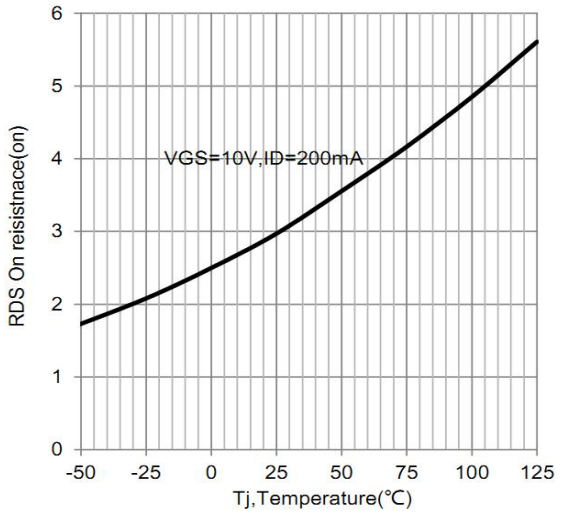
ID vs. VDS

Fig.2 - Transfer Characteristics



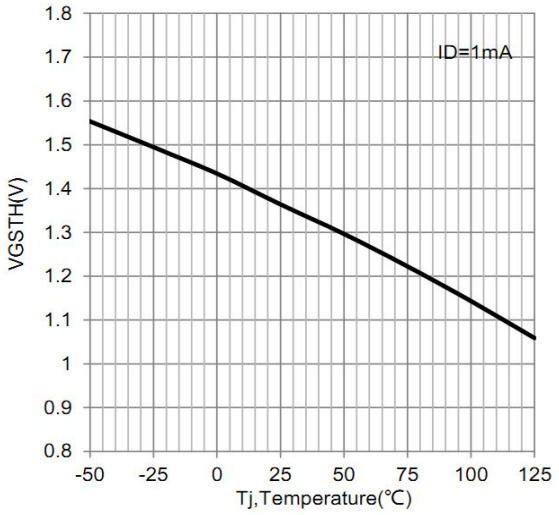
ID vs. VGS

Fig.3 - RDS(on) vs. Junction Temperature



RDS(on) vs. Tj

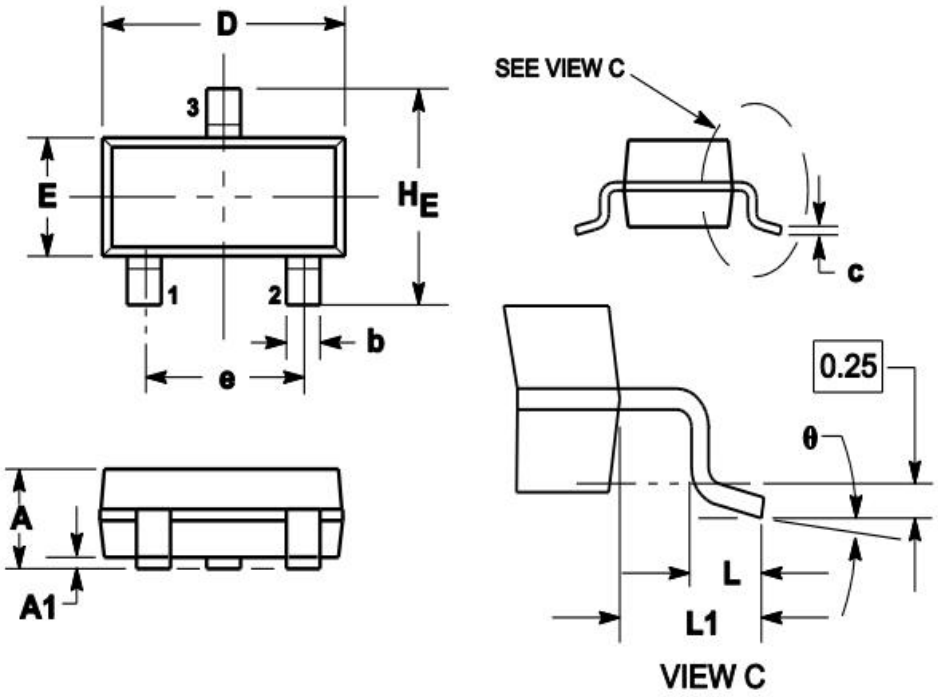
Fig.4 - $V_{GS(TH)}$ vs. Junction Temperature



VGS(th) vs. Tj

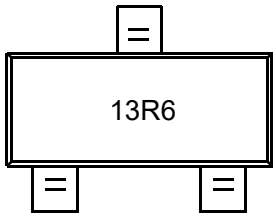
Package Outline Dimensions (Unit: millimeters)

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DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

Marking Outline



Part Name: SSF13R6

1. P/N Mark: 13R6

Revision History

Version	Date	Major Changes
Rev.A	2025.08.04	Official Release

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