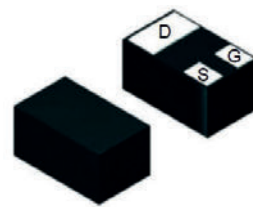
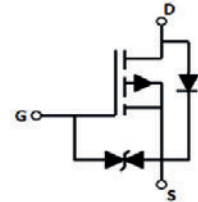


Main Product Characteristics

BV_{DSS}	-20V
$R_{DS(ON)}$	410mΩ (Max.)
I_D	-0.7A



SOT-883



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- ESD Protection
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFW3139K utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current, Steady State @ T _A =25°C	I _D	-0.7	A
Continuous Drain Current, Steady State @ T _A =70°C		-0.6	A
Pulsed Drain Current ¹	I _{DM}	-2.9	A
Total Power Dissipation, Steady State @ T _A =25°C ²	P _D	0.34	W
Thermal Resistance Junction-to-Ambient @ Steady State ²	R _{θJA}	366	°C/W
Junction and Storage Temperature Range	T _J /T _{STG}	-55 to +150	°C

Note:

1. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%.
2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch. With 2oz Copper, t ≤ 10s

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V, T _C =25°C	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-	-1	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-0.5A	-	365	410	mΩ
		V _{GS} =-2.5V, I _D =-0.3A	-	520	680	
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, F=1MHz	-	34.6	-	pF
Output Capacitance	C _{oss}		-	10.2	-	
Reverse Transfer Capacitance	C _{rss}		-	5.2	-	
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-0.5A	-	1.21	-	nC
Gate Source Charge	Q _{gs}		-	0.33	-	
Gate Drain Charge	Q _{gd}		-	0.28	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-10V, R _L =2.5Ω, R _{GEN} =2.5Ω	-	4.2	-	nS
Turn-on Rise Time	t _r		-	15	-	
Turn-off Delay Time	t _{d(off)}		-	16	-	
Turn-off Fall Time	t _f		-	24	-	
Source-Drain Ratings and Characteristics						
Diode Forward Voltage	V _{SD}	I _S =-0.7A, V _{GS} =0V	-	-0.9	-1.2	V
Maximum Body-Diode Continuous Current	I _S	-	-	-	-0.7	A

Typical Performance Characteristics

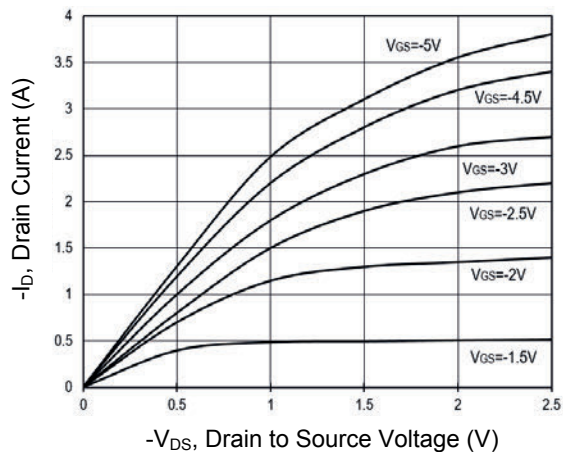


Figure 1. Output Characteristics

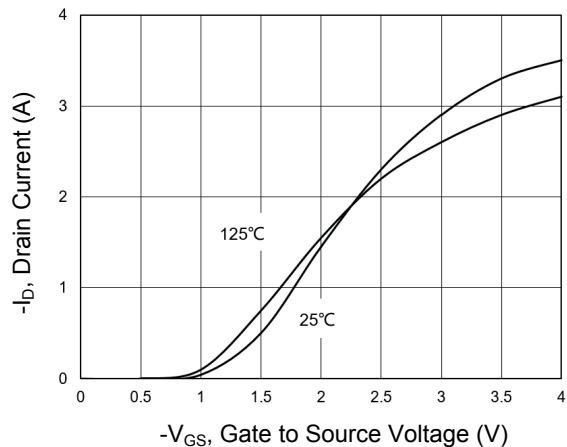


Figure 2. Transfer Characteristics

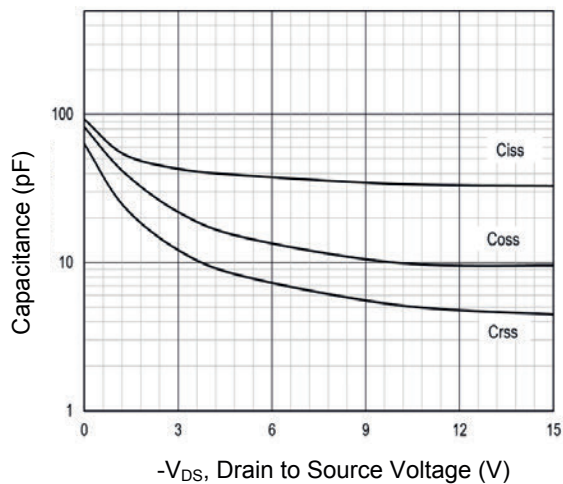


Figure 3. Capacitance Characteristics

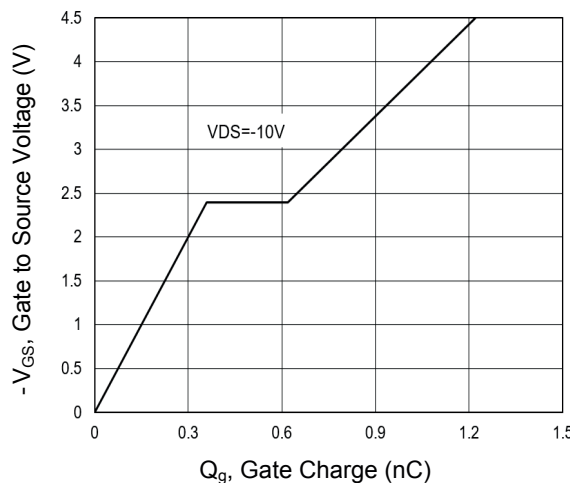


Figure 4. Gate Charge

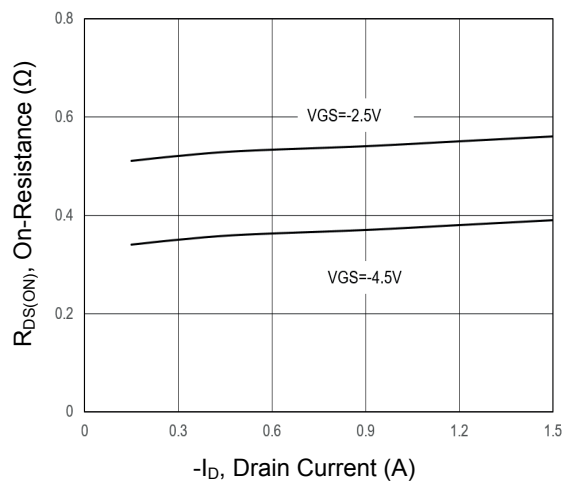


Figure 5. Drain to Source on Resistance

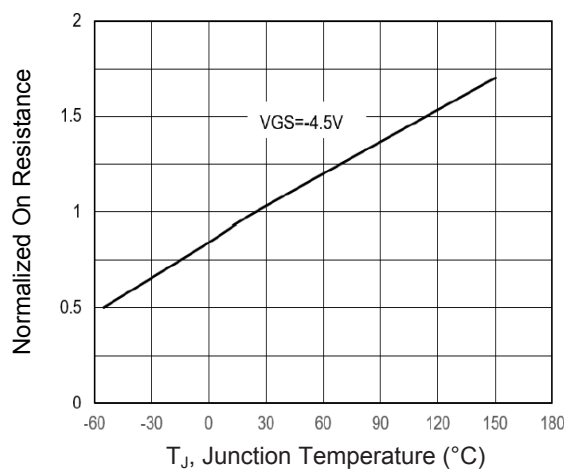


Figure 6. Normalized $R_{DS(on)}$ vs. T_J

Typical Performance Characteristics

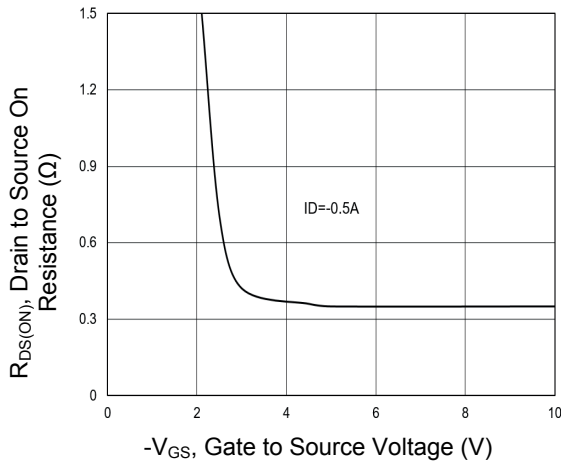


Figure 7. Typical Drain to Source On Resistance vs. Gate Voltage and Drain Current

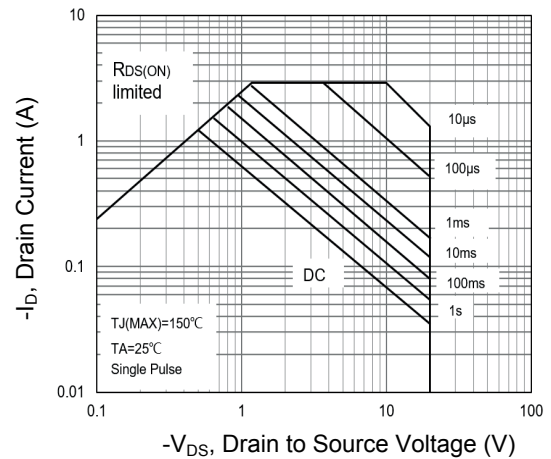


Figure 8. Safe Operation Area

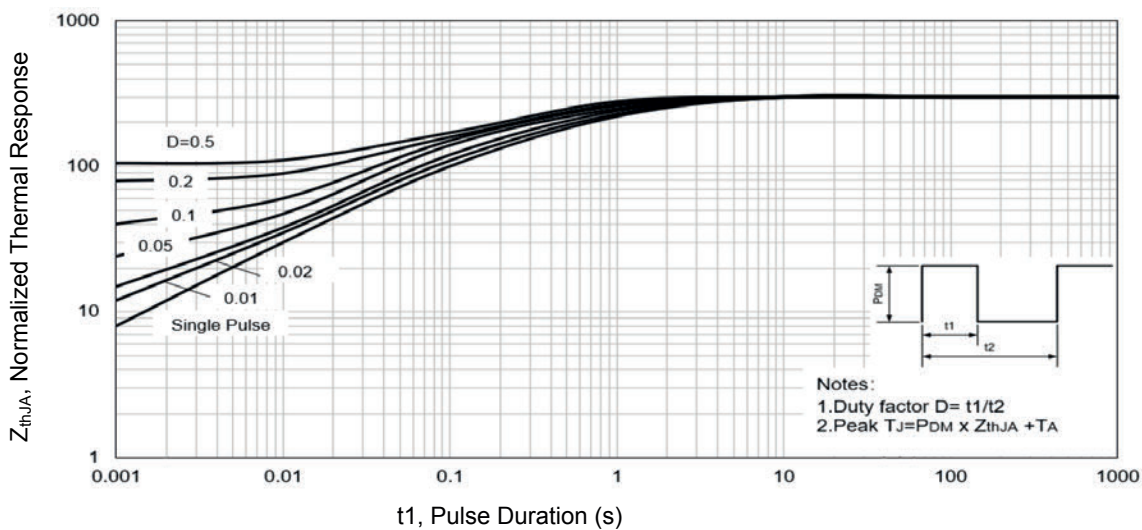
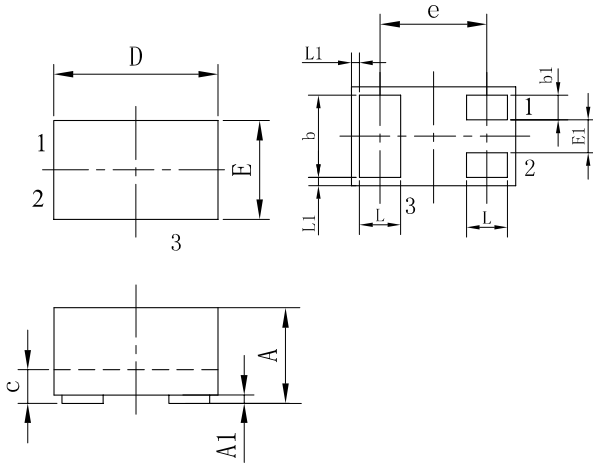


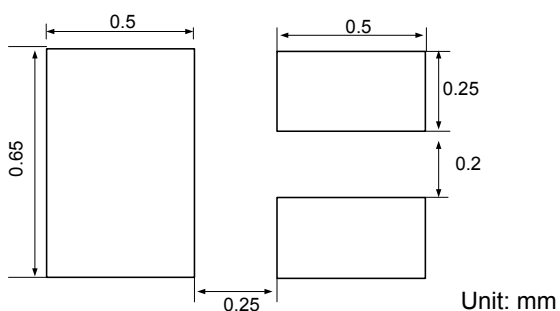
Figure 9. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Package Outline Dimensions (SOT-883)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.45	0.55	0.018	0.022
A1	0.00	0.05	0.000	0.002
b	0.45	0.55	0.018	0.022
b1	0.10	0.20	0.004	0.008
c	0.12	0.18	0.005	0.007
D	0.95	1.05	0.037	0.041
e	0.65 BSC		0.026 BSC	
E	0.55	0.65	0.022	0.026
E1	0.15	0.25	0.006	0.010
L	0.20	0.30	0.008	0.012
L1	0.05 REF		0.002 REF	

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
GSFW3139K	SOT-883	U6	Tape & Reel	10,000 pcs / 7" Reel

For more information, please contact us at: inquiry@goodarksemi.com