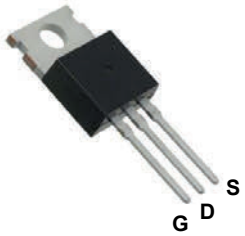
GOOD-ARK SEMICONDUCTOR

GSFH0882

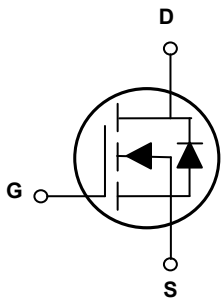
80V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	80V
$R_{DS(ON)}$	8.7mΩ (Max.)
I_D	81A



TO-220



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The GSFH0882 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}	80	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_C=25°C)	I_D	81	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		51	A
Pulsed Drain Current	I_{DM}	324	A
Power Dissipation	P_D	137	W
		1.1	W/°C
Single Pulse Avalanche Energy[1]	E_{AS}	361	mJ
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.91	°C/W
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.5	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	80	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V	-	-	1.0	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=20V	-	-	100	nA
		V_{GS}=-20V	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=40A	-	7.3	8.7	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	-	4.0	mV
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	4160	-	pF
Output Capacitance	C_{oss}		-	246	-	
Reverse Transfer Capacitance	C_{rss}		-	182	-	
Total Gate Charge[2,3]	Q_g	I_D=40A, V_{DD}=40V, V_{GS}=10V	-	97	-	nC
Gate-to-Source Charge[2,3]	Q_{gs}		-	19	-	
Gate-to-Drain ("Miller") Charge[2,3]	Q_{gd}		-	38	-	
Turn-on Delay Time[2,3]	$t_{d(on)}$	V_{GS}=10V, V_{DD}=40V, R_g=1.0Ω, I_D=40A	-	27	-	nS
Rise Time[2,3]	t_r		-	20	-	
Turn-Off Delay Time[2,3]	$t_{d(off)}$		-	58	-	
Fall Time[2,3]	t_f		-	24	-	
Gate Resistance	R_g	f=1MHz	-	0.6	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	81	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	324	A
Diode Forward Voltage	V_{SD}	I_S=40A, V_{GS}=0V	-	-	1.4	V
Reverse Recovery Time[2]	T_{rr}	V_{GS}=0V, I_S=20A, dI_F/dt=500A/μs	-	40	-	nS
Reverse Recovery Charge[2]	Q_{rr}		-	59	-	nC

Notes:

1. L=0.5mH, R_G=25Ω, V_{DD}=40V, T_J=25°C .
2. Pulse test: Pulse width ≤ 300us, duty cycle ≤ 2%.
3. Basically unaffected by operating temperature.

Typical Electrical and Thermal Characteristic Curves

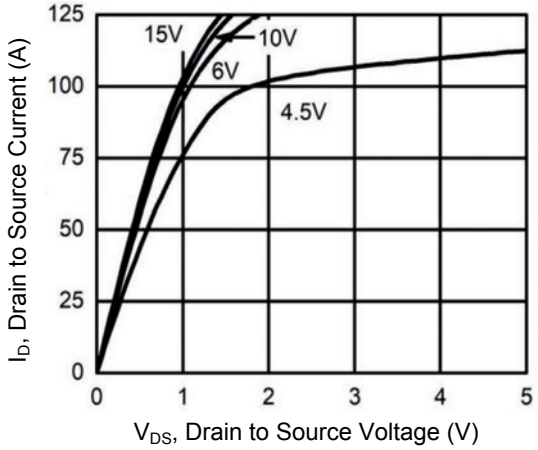


Figure 1. Typical Output Characteristics

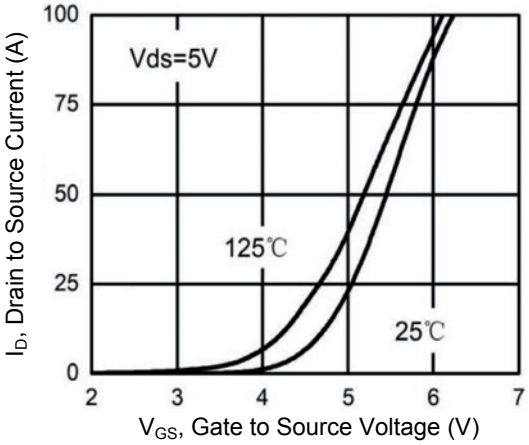


Figure 2. Transfer Characteristics

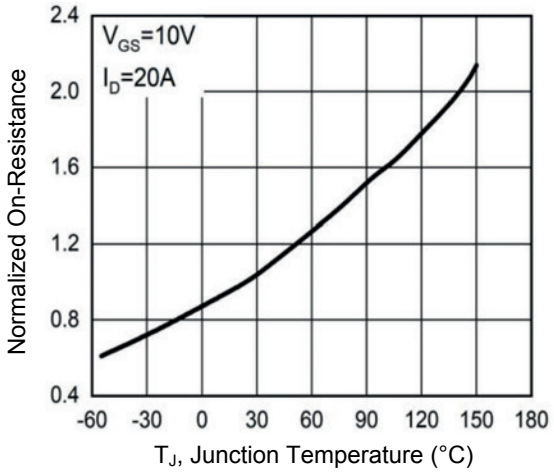


Figure 3. Normalized $R_{DS(ON)}$ vs. T_J

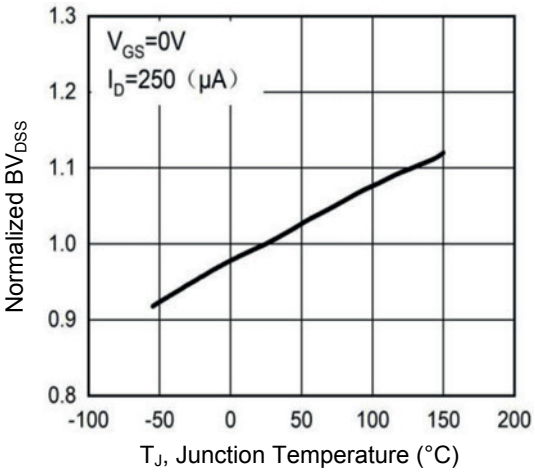


Figure 4. Normalized BV_{DSS} vs. T_J

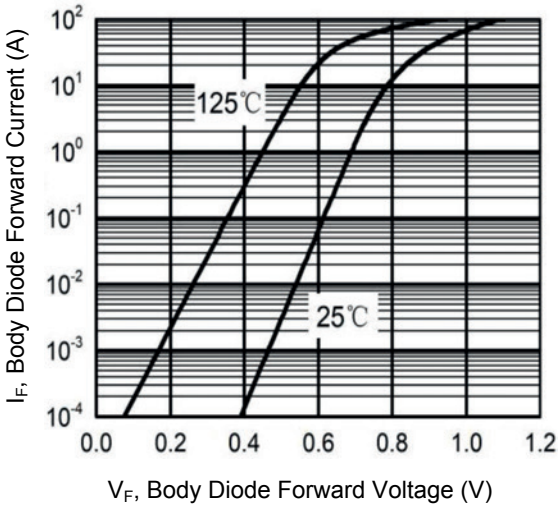


Figure 5. Body Diode Characteristics

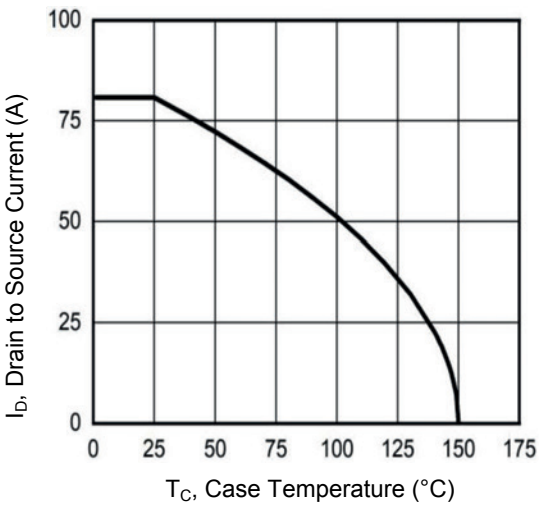


Figure 6. Drain Current vs. T_C

Typical Electrical and Thermal Characteristic Curves

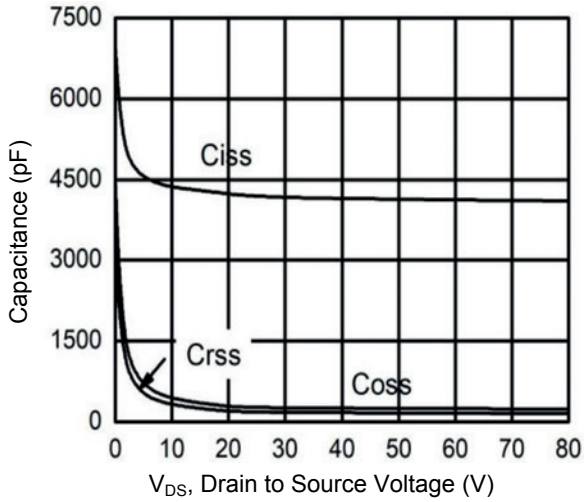


Figure 7. Capacitance Characteristics

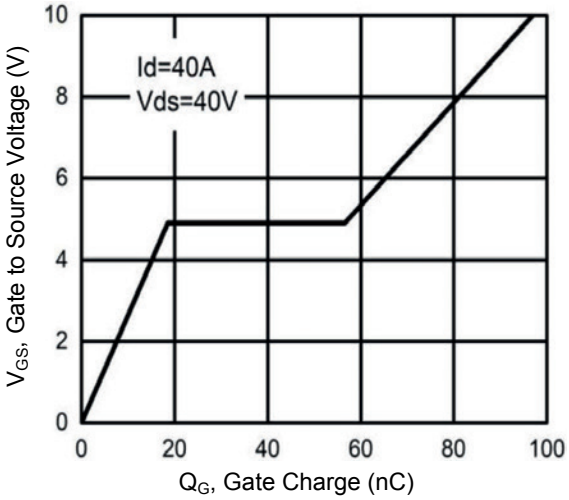


Figure 8. Gate Charge

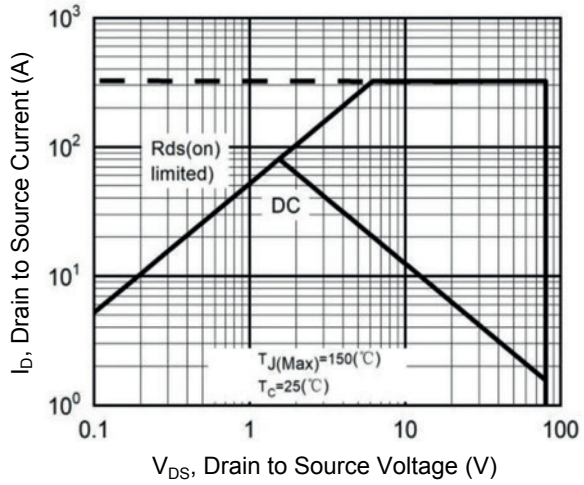
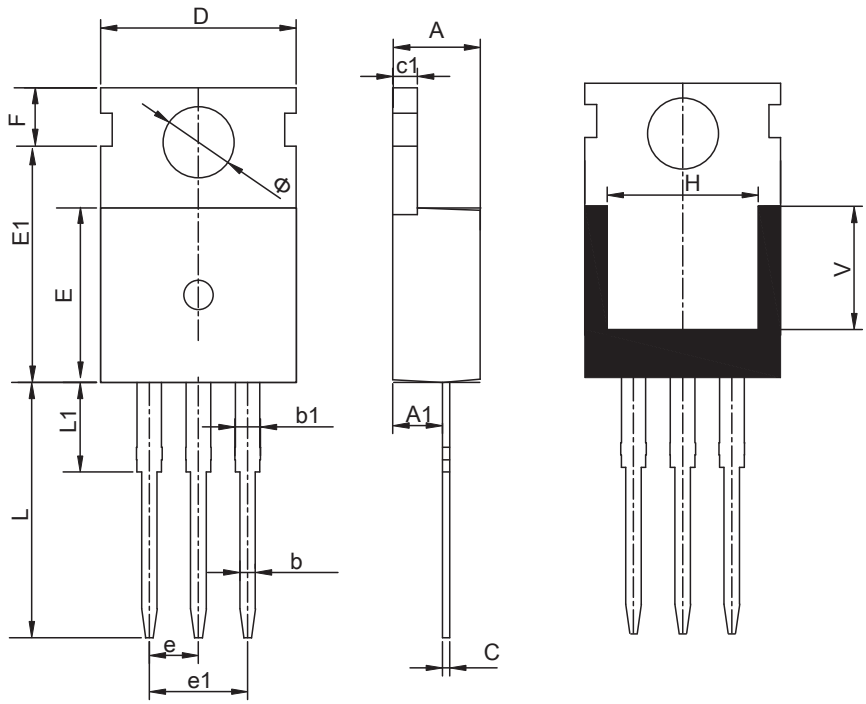


Figure 9. Safe Operation Area

Package Outline Dimensions (TO-220)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
A1	2.25	2.70	0.089	0.106
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
C	0.33	0.65	0.013	0.026
c1	1.20	1.40	0.047	0.055
D	9.91	10.25	0.390	0.404
E	8.95	9.75	0.352	0.384
E1	12.65	13.00	0.498	0.512
e	2.54 TYP		0.100 TYP	
e1	4.98	5.18	0.196	0.204
F	2.65	2.95	0.104	0.116
H	7.90	8.10	0.311	0.319
L	12.90	13.40	0.508	0.528
L1	2.68	3.25	0.106	0.128
V	6.90 REF		0.272 REF	
Φ	3.40	3.80	0.134	0.150

Order Information

Device	Package	Marking	Carrier	Quantity
GSFH0882	TO-220	H0882	Tube	50pcs / Tube

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