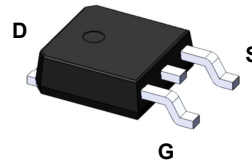
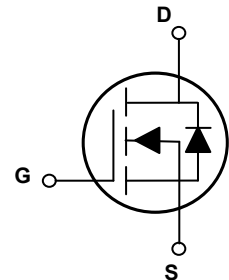


### Main Product Characteristics

$V_{(BR)DSS}$	250V
$R_{DS(ON)}$	0.28 $\Omega$ (Max.)
$I_D$	14A



TO-252 (DPAK)



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 GSFD2514 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 ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	$V_{DS}$	250	V
Gate-to-Source Voltage	$V_{GS}$	$\pm 30$	V
Continuous Drain Current, @ Steady-State ( $T_C=25^\circ\text{C}$ )	$I_D$	14	A
Continuous Drain Current, @ Steady-State ( $T_C=100^\circ\text{C}$ )		9.0	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	56	A
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$	88	W
		0.71	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy	$E_{AS}$	240	mJ
Body Diode Reverse Voltage Slope	$dv/dt$	4.5	V/ns
MOS $dv/dt$ Ruggedness	$dv/dt$	50	V/ns
Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.42	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	$T_J/T_{STG}$	-55 to +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes	$T_L$	260	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>On / Off Characteristics</b>						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	250	-	-	V
Drain-to-Source Leakage Current	$I_{DSS}$	$V_{DS}=250V, V_{GS}=0V, T_C=25^\circ\text{C}$	-	-	1.0	$\mu A$
		$V_{DS}=200V, T_C=125^\circ\text{C}$	-	-	100	$\mu A$
Gate-to-Source Forward Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
		$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=7A$	-	0.224	0.28	$\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3.0	-	4.6	V
<b>Dynamic and Switching Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=25V, f=1\text{MHz}$	-	673	-	pF
Output Capacitance	$C_{oss}$		-	107	-	
Reverse Transfer Capacitance	$C_{rss}$		-	13	-	
Total Gate Charge <sup>2,3</sup>	$Q_g$	$I_D=14A, V_{DS}=200V, V_{GS}=10V$	-	18	-	nC
Gate-to-Source Charge <sup>2,3</sup>	$Q_{gs}$		-	7.8	-	
Gate-to-Drain ("Miller") Charge <sup>2,3</sup>	$Q_{gd}$		-	7.5	-	
Turn-On Delay Time <sup>2,3</sup>	$t_{d(on)}$	$V_{DD}=125V, V_{GS}=10V, R_G=25\Omega, I_D=14A$	-	15	-	nS
Rise Time <sup>2,3</sup>	$t_r$		-	61	-	
Turn-Off Delay Time <sup>2,3</sup>	$t_{d(off)}$		-	25	-	
Fall Time <sup>2,3</sup>	$t_f$		-	26	-	
Gate Resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, f=1\text{MHz}$	-	3.1	-	$\Omega$
<b>Source-Drain Ratings and Characteristics</b>						
Continuous Source Current (Body Diode)	$I_S$	$T_C=25^\circ\text{C}$ , MOSFET symbol showing the integral reverse p-n junction diode.	-	-	14	A
Diode Pulse Current	$I_{SM}$		-	-	56	A
Diode Forward Voltage	$V_{SD}$	$I_S=4.0A, V_{GS}=0V$	-	-	1.3	V
Reverse Recovery Time	$T_{rr}$	$I_S=14A, V_{GS}=0V, di_f/dt=100A/\mu s$	-	203	-	nS
Reverse Recovery Charge	$Q_{rr}$		-	1.5	-	$\mu C$

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. Essentially independent of operating temperature.

### Typical Electrical and Thermal Characteristic Curves

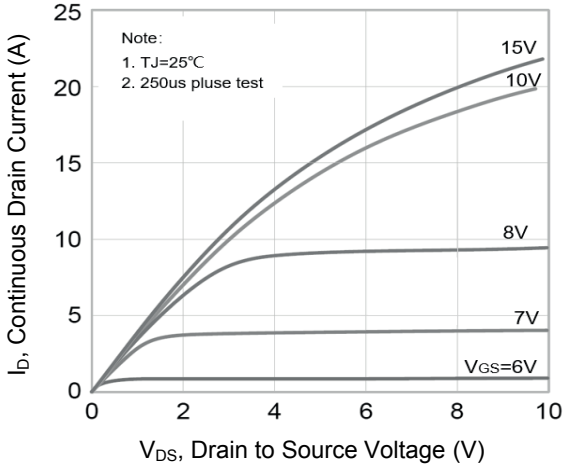


Figure 1. Output Characteristics

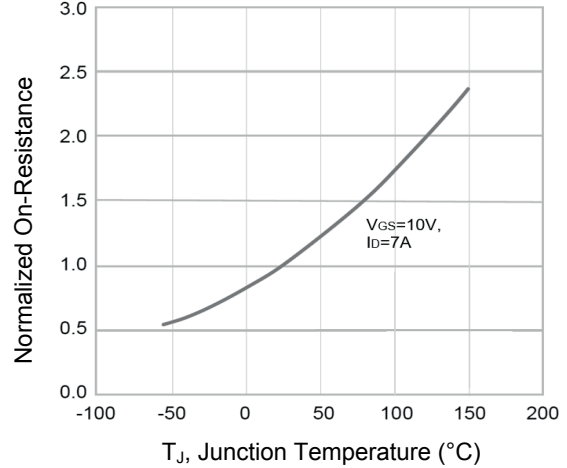


Figure 2. Normalized  $R_{DS(ON)}$  vs.  $T_J$

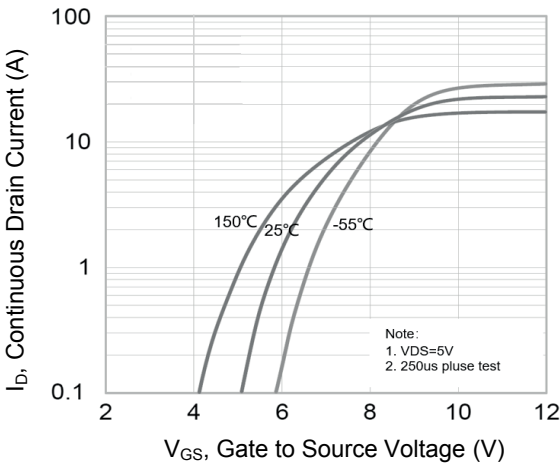


Figure 3. Transfer Characteristics

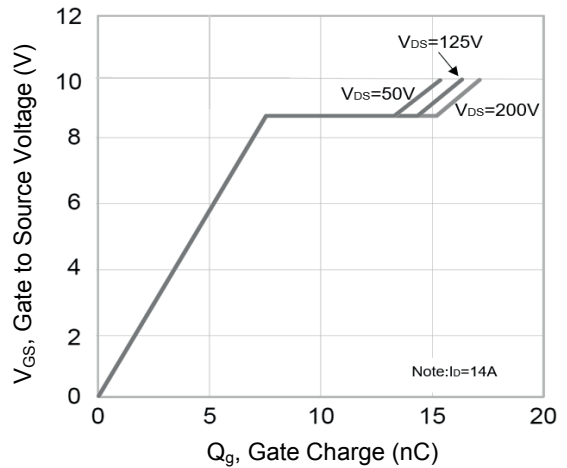


Figure 4. Gate Charge Waveform

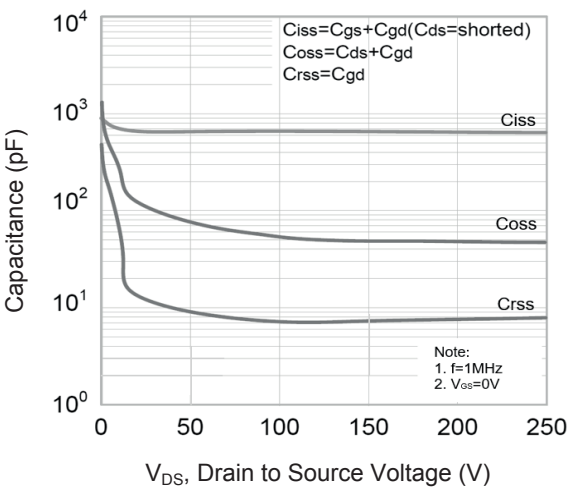


Figure 5. Capacitance Characteristics

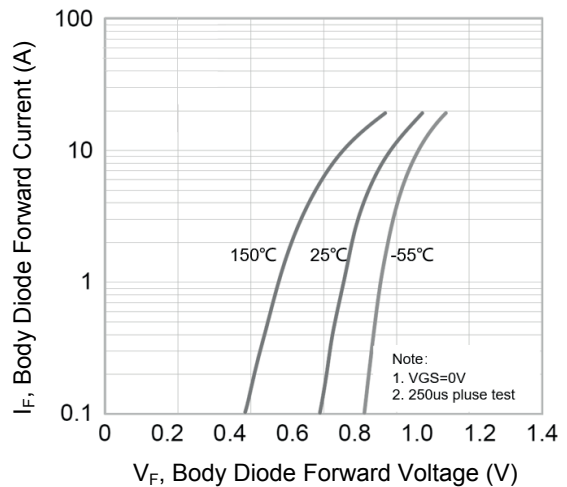
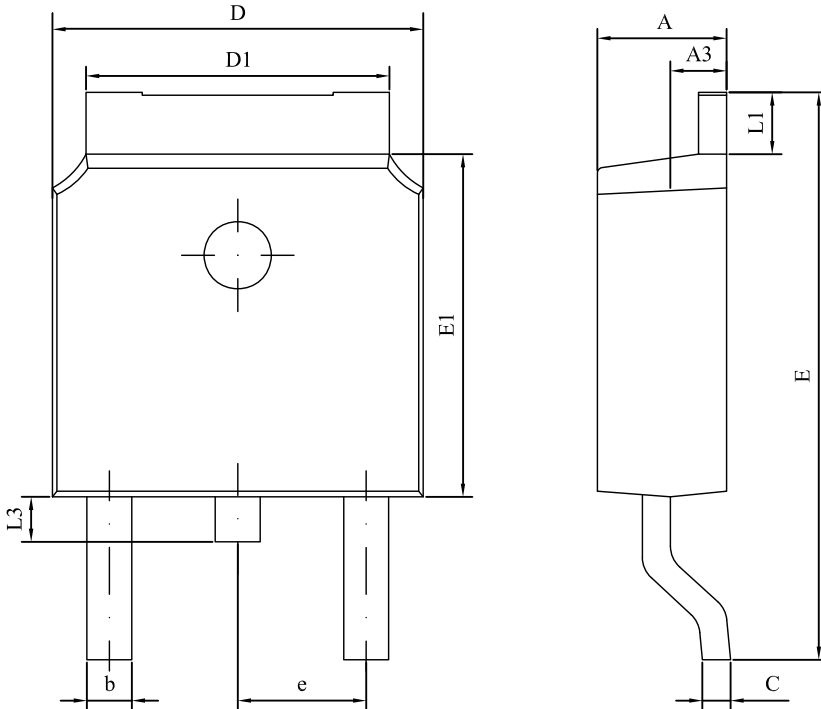


Figure 6. Body Diode Characteristics

## Package Outline Dimensions TO-252 (DPAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.15	2.40	0.085	0.094
A3	0.90	1.10	0.035	0.043
b	0.50	0.90	0.020	0.035
C	0.40	0.65	0.016	0.026
D	6.30	6.90	0.248	0.272
D1	4.95	5.50	0.195	0.217
E	9.40	10.41	0.370	0.410
E1	5.90	6.30	0.232	0.248
e	2.286 BSC		0.090 BSC	
L1	0.89	1.27	0.035	0.050
L3	0.60	1.10	0.024	0.043

## Order Information

Device	Package	Marking	Carrier	Quantity
GSFD2514	TO-252 (DPAK)	D2514	Tape & Reel	2,500 Pcs / Reel

For more information, please contact us at: [inquiry@goodarksemi.com](mailto:inquiry@goodarksemi.com)