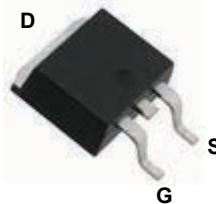
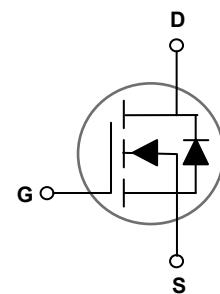


## Main Product Characteristics

BV <sub>DSS</sub>	100V
R <sub>DS(ON)</sub>	19mΩ
I <sub>D</sub>	35A



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 GSFD1035 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 supply and a wide variety of other applications.

## Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current-Continuous (T <sub>C</sub> =25°C)	I <sub>D</sub>	35	A
Drain Current-Continuous (T <sub>C</sub> =100°C)		22	
Drain Current-Pulsed <sup>1</sup>	I <sub>DM</sub>	140	A
Single Pulse Avalanche Energy <sup>2</sup>	E <sub>AS</sub>	76	mJ
Single Pulse Avalanche Current <sup>2</sup>	I <sub>AS</sub>	39	A
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	62	W
Power Dissipation-Derate above 25°C		0.49	W/°C
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	62	°C/W
Thermal Resistance, Junction-to-Case	R <sub>θJC</sub>	2.01	°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-55 To +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 To +150	°C

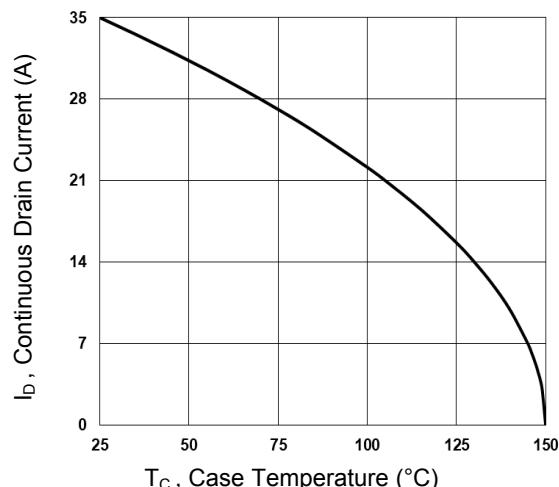
### Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>On/Off Characteristics</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=250\mu\text{A}$	100	-	-	V
Drain-Source Leakage Current	$I_{\text{DSS}}$	$V_{\text{DS}}=80\text{V}, V_{\text{GS}}=0\text{V}, T_J=25^\circ\text{C}$	-	-	1	$\mu\text{A}$
		$V_{\text{DS}}=80\text{V}, V_{\text{GS}}=0\text{V}, T_J=85^\circ\text{C}$	-	-	10	$\mu\text{A}$
Gate-Source Leakage Current	$I_{\text{GSS}}$	$V_{\text{GS}}=\pm 20\text{V}, V_{\text{DS}}=0\text{V}$	-	-	$\pm 100$	nA
Static Drain-Source On-Resistance <sup>3</sup>	$R_{\text{DS}(\text{ON})}$	$V_{\text{GS}}=10\text{V}, I_{\text{D}}=15\text{A}$	-	16	19	$\text{m}\Omega$
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{GS}}=V_{\text{DS}}, I_{\text{D}}=250\mu\text{A}$	2	3	4	V
Forward Transconductance	$g_{\text{fs}}$	$V_{\text{DS}}=10\text{V}, I_{\text{D}}=3\text{A}$	-	6	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>3,4</sup>	$Q_g$	$V_{\text{DS}}=50\text{V}, I_{\text{D}}=20\text{A}, V_{\text{GS}}=10\text{V}$	-	11.4	18	nC
Gate-Source Charge <sup>3,4</sup>	$Q_{\text{gs}}$		-	2.6	4	
Gate-Drain Charge <sup>3,4</sup>	$Q_{\text{gd}}$		-	4	6	
Turn-On Delay Time <sup>3,4</sup>	$t_{\text{d}(\text{on})}$	$V_{\text{DD}}=50\text{V}, R_{\text{G}}=6\Omega, V_{\text{GS}}=10\text{V}, I_{\text{D}}=20\text{A}$	-	4.8	7.2	nS
Rise Time <sup>3,4</sup>	$t_r$		-	12.5	19	
Turn-Off Delay Time <sup>3,4</sup>	$t_{\text{d}(\text{off})}$		-	27.6	42	
Fall Time <sup>3,4</sup>	$t_f$		-	8.2	13	
Input Capacitance	$C_{\text{iss}}$	$V_{\text{DS}}=50\text{V}, V_{\text{GS}}=0\text{V}, F=1\text{MHz}$	-	865	1300	pF
Output Capacitance	$C_{\text{oss}}$		-	175	260	
Reverse Transfer Capacitance	$C_{\text{rss}}$		-	6	10	
Gate Resistance	$R_g$	$V_{\text{GS}}=0\text{V}, V_{\text{DS}}=0\text{V}, F=1\text{MHz}$	-	0.9	-	$\Omega$
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	$I_s$	$V_G=V_D=0\text{V}, \text{Force Current}$	-	-	35	A
Pulsed Source Current	$I_{\text{SM}}$		-	-	70	A
Diode Forward Voltage	$V_{\text{SD}}$	$V_{\text{GS}}=0\text{V}, I_{\text{s}}=1\text{A}, T_J=25^\circ\text{C}$	-	-	1	V
Reverse Recovery Time	$t_{\text{rr}}$	$V_R=100\text{V}, I_{\text{s}}=10\text{A}, \frac{di}{dt}=100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	-	130	-	nS
Reverse Recovery Charge	$Q_{\text{rr}}$		-	180	-	nC

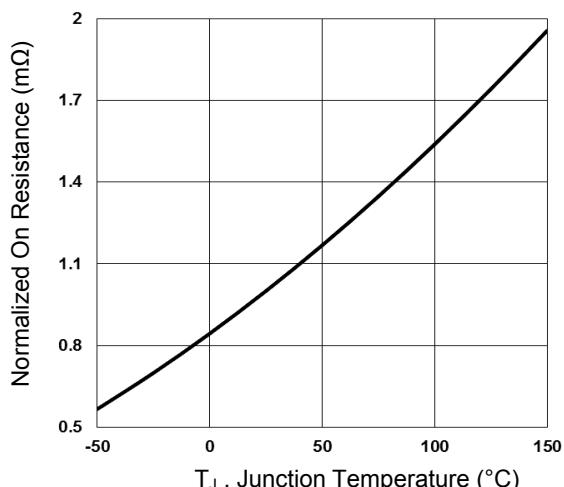
Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2.  $V_{\text{DD}}=50\text{V}, V_{\text{GS}}=10\text{V}, L=0.1\text{mH}, I_{\text{AS}}=39\text{A}, R_{\text{G}}=25\Omega$ , starting  $T_J=25^\circ\text{C}$ .
3. Pulse test: pulse width  $\leq 300\text{us}$ , duty cycle  $\leq 2\%$ .
4. Essentially independent of operation temperature.

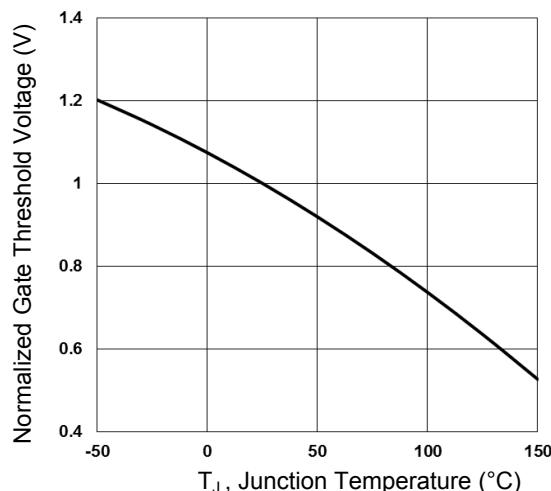
## Typical Electrical and Thermal Characteristic Curves



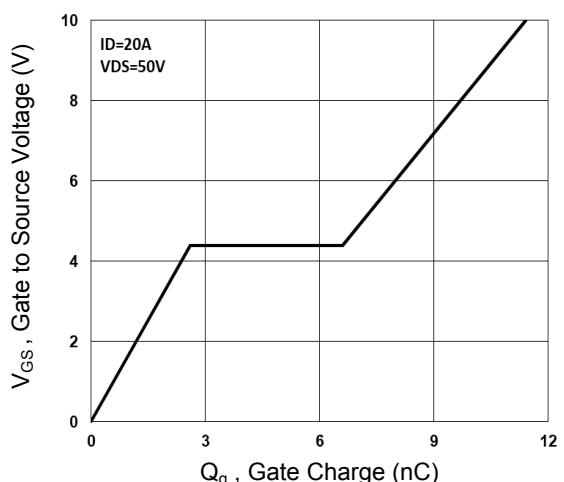
**Figure 1. Continuous Drain Current vs. T<sub>c</sub>**



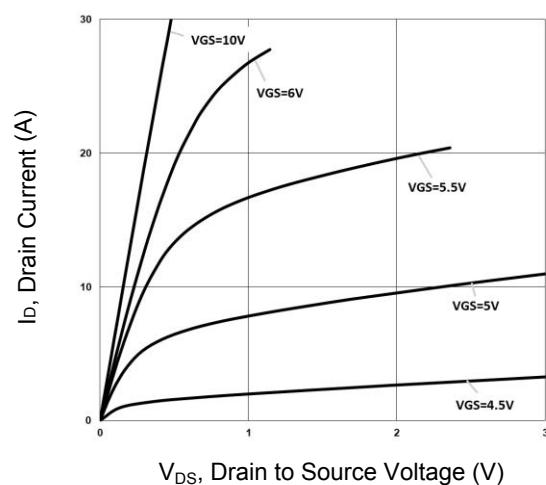
**Figure 2. Normalized R<sub>DSON</sub> vs. T<sub>j</sub>**



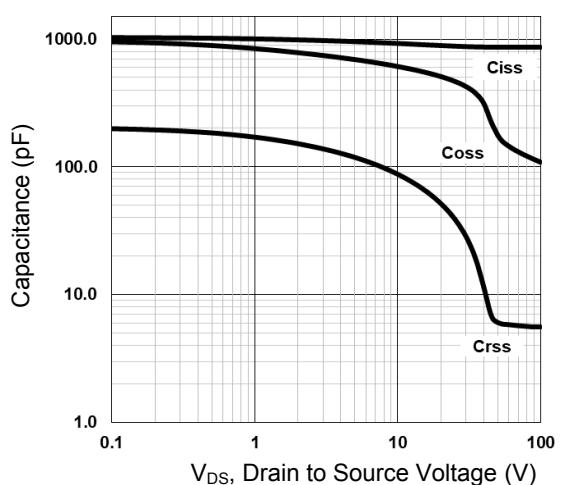
**Figure 3. Normalized V<sub>th</sub> vs. T<sub>j</sub>**



**Figure 4. Gate Charge Characteristics**



**Figure 5. Typical Output Characteristics**



**Figure 6. Capacitance Characteristics**

## Typical Electrical and Thermal Characteristic Curves

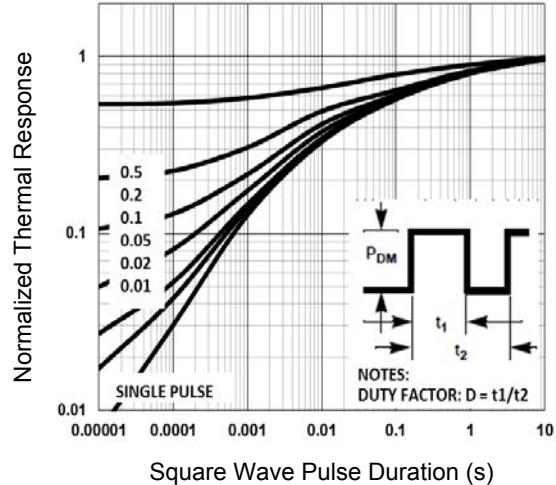


Figure 7. Normalized Transient Impedance

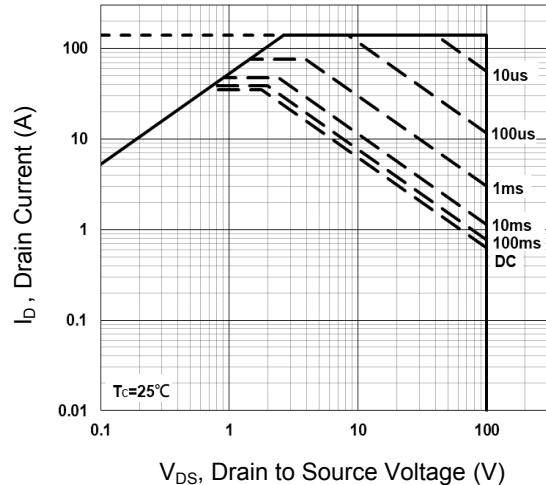


Figure 8. Maximum Safe Operation Area

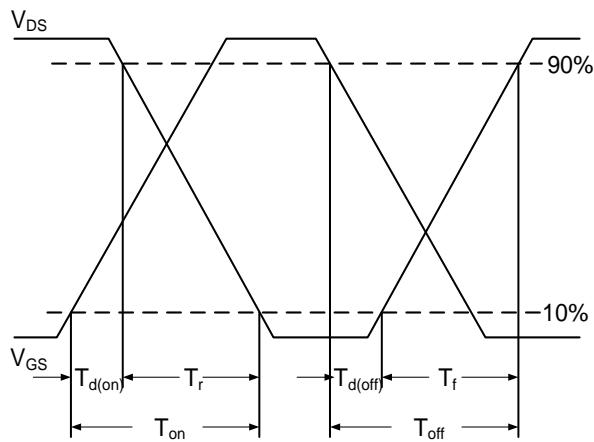


Figure 9. Switching Time Waveform

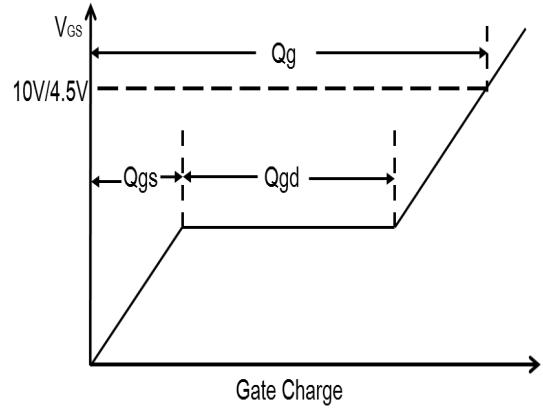
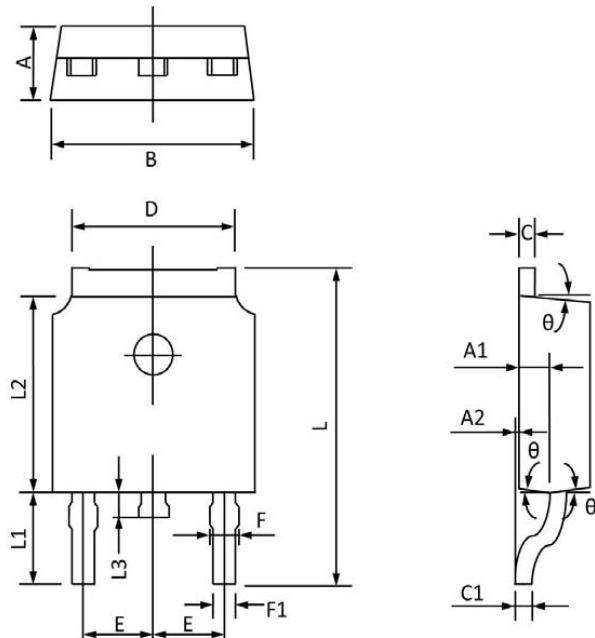


Figure 10. Gate Charge Waveform

**Package Outline Dimensions      TO-252 (DPAK)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	2.450	2.150	0.096	0.085
A1	1.200	0.910	0.047	0.036
A2	0.150	0.000	0.006	0.000
B	6.800	6.300	0.268	0.248
C	0.580	0.350	0.023	0.014
C1	0.550	0.380	0.022	0.015
D	5.500	5.100	0.217	0.201
E	2.390	2.000	0.094	0.079
F	0.940	0.600	0.037	0.024
F1	0.860	0.500	0.034	0.020
L	10.400	9.400	0.409	0.370
L1	3.000	2.400	0.118	0.094
L2	6.200	5.300	0.244	0.209
L3	1.200	0.600	0.047	0.024
θ	9°	3°	9°	3°

**Order Information**

Device	Package	Marking Code	Carrier	Quantity	HSF Status
GSFD1035	TO-252	DD09C6BH	Tape & Reel	2500/Reel	RoHS Compliant