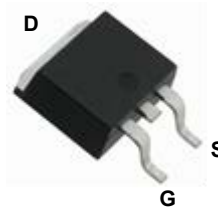
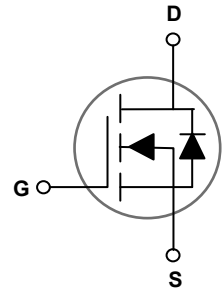


Main Product Characteristics

$V_{(BR)DSS}$	150V
$R_{DS(on)}$	22mΩ
I_D	50A



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 GSFD1550 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 ($T_C=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous ($T_C=25^{\circ}C$)	I_D	50	A
Drain Current-Continuous ($T_C=100^{\circ}C$)		32	
Drain Current-Pulsed ¹	I_{DM}	200	A
Single Pulse Avalanche Energy ²	E_{AS}	153	mJ
Single Pulse Avalanche Current ²	I_{AS}	17.5	A
Power Dissipation ($T_C=25^{\circ}C$)	P_D	133	W
Power Dissipation-Derate above 25°C		1.06	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.94	°C/W
Operating Junction Temperature Range	T_J	-50 To +150	°C
Storage Temperature Range	T_{STG}	-50 To +150	°C



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=120V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{DS}=120V, V_{GS}=0V, T_J=85^\circ\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	$V_{GS}=10V, I_D=25A$	-	18	22	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2	3	4	V
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=3A$	-	11	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q_g	$V_{DS}=75V, I_D=25A, V_{GS}=10V$	-	39	60	nC
Gate-Source Charge ^{3,4}	Q_{gs}		-	9.5	15	
Gate-Drain Charge ^{3,4}	Q_{gd}		-	15	23	
Turn-On Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=75V, R_G=6\Omega, V_{GS}=10V, I_D=25A$	-	15	23	nS
Rise Time ^{3,4}	t_r		-	28	42	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	45	68	
Fall Time ^{3,4}	t_f		-	32	48	
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, F=1\text{MHz}$	-	2300	3450	pF
Output Capacitance	C_{oss}		-	220	330	
Reverse Transfer Capacitance	C_{rss}		-	10	15	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	1.5	-	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	50	A
Pulsed Source Current	I_{SM}		-	-	100	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	-	-	1	V
Reverse Recovery Time ³	t_{rr}	$V_R=100V, I_S=10A, di/dt=100A/\mu s, T_J=25^\circ\text{C}$	-	90	-	nS
Reverse Recovery Charge ³	Q_{rr}		-	355	-	nC

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=50V, V_{GS}=10V, L=1\text{mH}, I_{AS}=17.5A, R_G=25\Omega, \text{Starting } T_J=25^\circ\text{C}$.
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

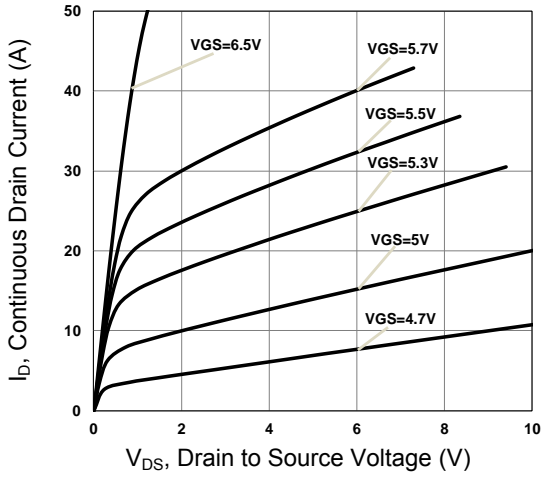


Figure 1. Typical Output Characteristics

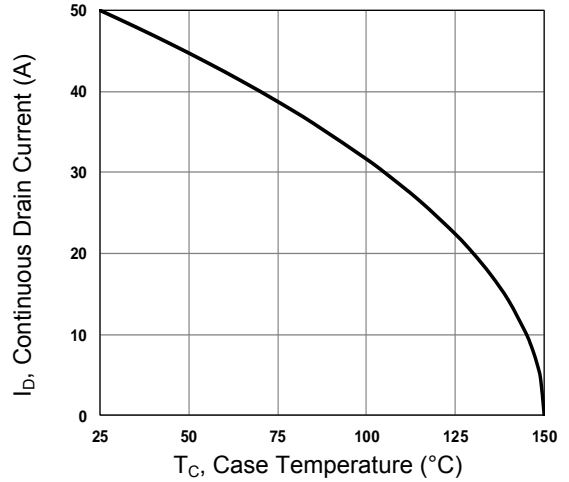


Figure 2. Continuous Drain Current vs. TC

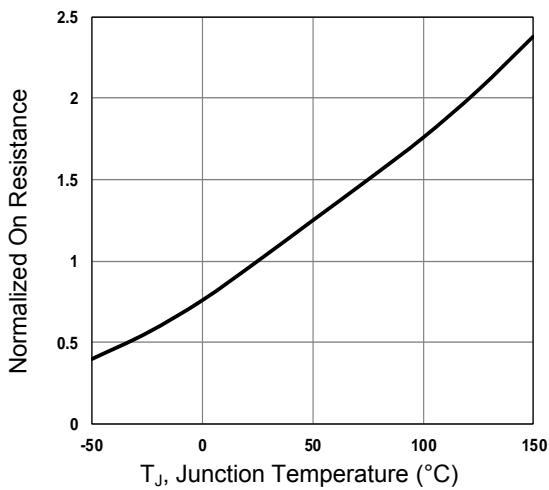


Figure 3. Normalized $R_{DS(on)}$ vs. T_J

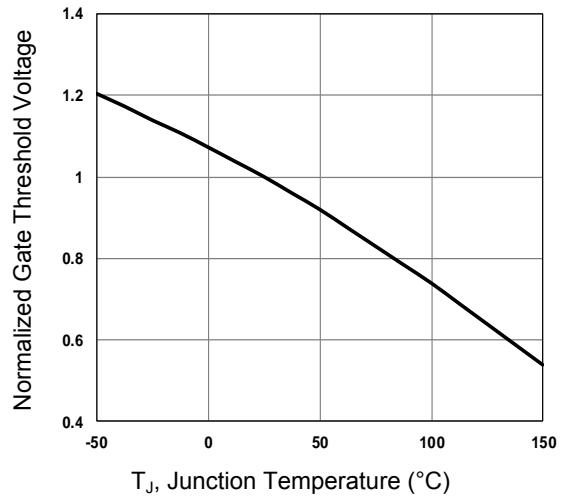


Figure 4. Normalized V_{th} vs. T_J

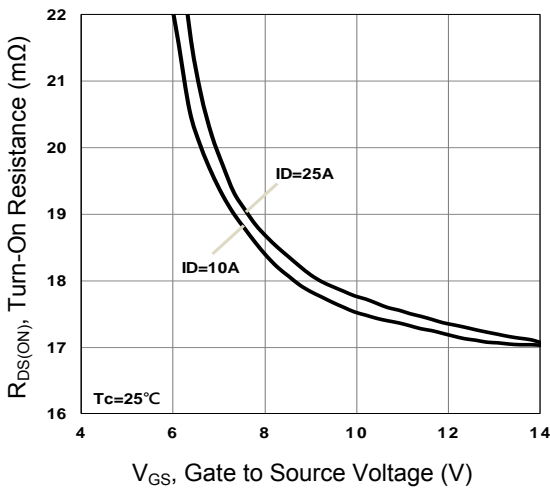


Figure 5. Turn-On Resistance vs. V_{GS}

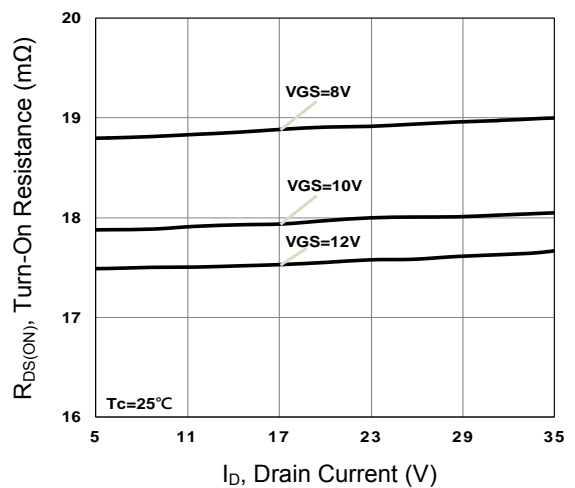


Figure 6. Turn-On Resistance vs. I_D

Typical Electrical and Thermal Characteristic Curves

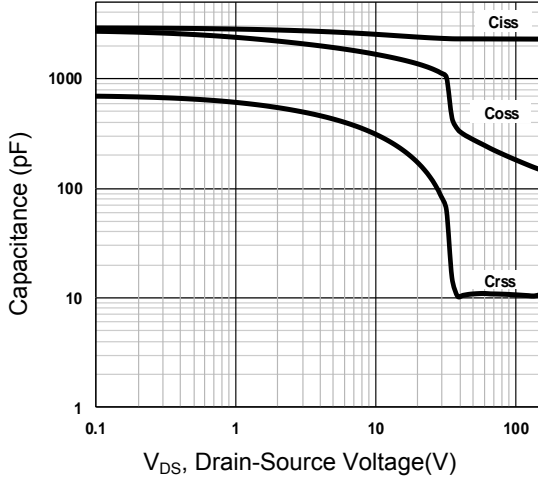


Figure 7. Capacitance Characteristics

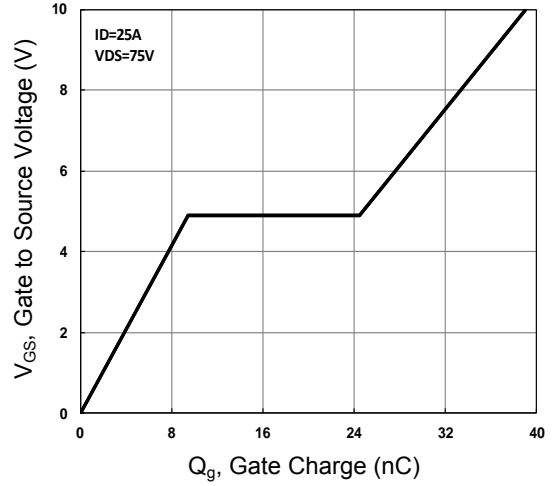


Figure 8. Gate Charge Waveform

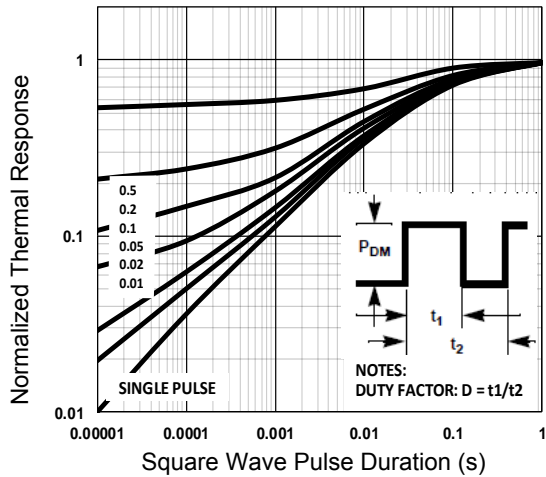


Figure 9. Normalized Transient Impedance

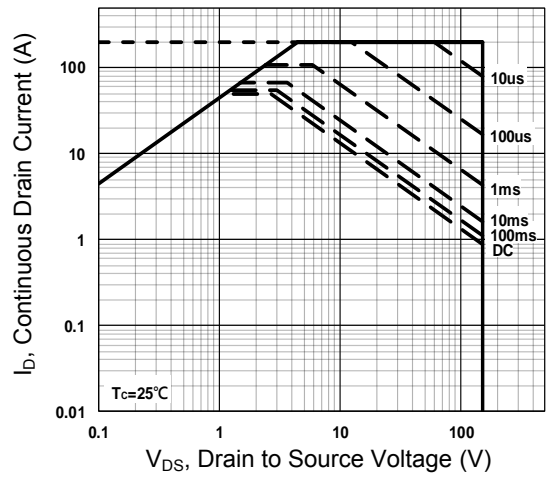


Figure 10. Maximum Safe Operation Area

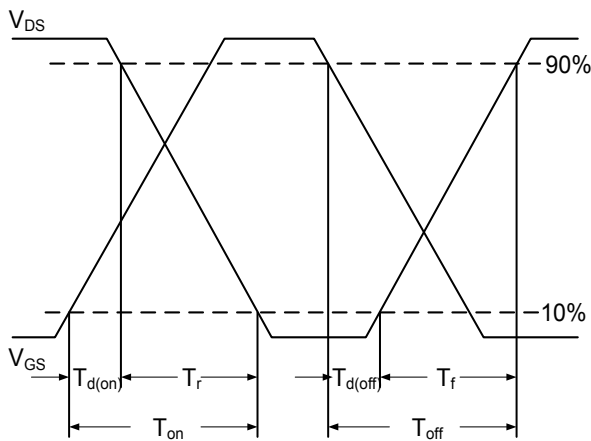


Figure 11. Switching Time Waveform

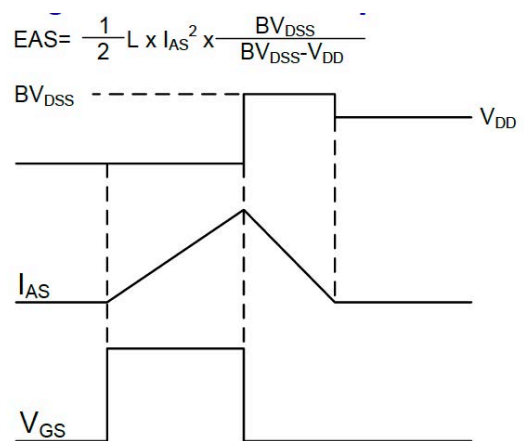
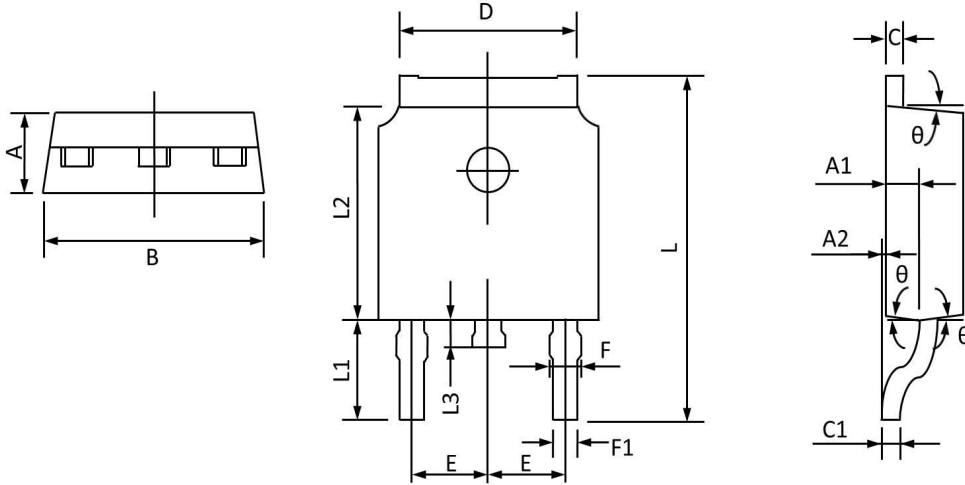


Figure 12. EAS Waveform

Package Outline Dimensions TO-252 (DPAK)



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

Order Information

Device	Package	Marking	Carrier	Quantity
GSFD1550	TO-252 (DPAK)	DD65N15BH	Tape & Reel	2,500 pcs / Reel