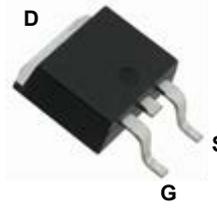
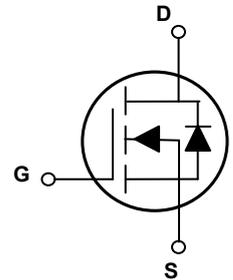


Main Product Characteristics

BV_{DSS}	650V
$R_{DS(ON)}$	580m Ω
I_D	8A



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 GSJD6508 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 ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous ($T_C=25^\circ\text{C}$)	I_D	8	A
Drain Current-Continuous ($T_C=100^\circ\text{C}$)		5	
Drain Current-Pulsed ¹	I_{DM}	32	A
Single Pulse Avalanche Energy ²	E_{AS}	170	mJ
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	65	W
Power Dissipation-Derate above 25°C		0.52	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.93	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^\circ\text{C}$

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}	$V_{GS}=0V, I_D=1mA$	650	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1	μA
		$V_{DS}=520V, V_{GS}=0V, T_J=100^{\circ}\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=2A$	-	530	580	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu\text{A}$	2	3	4	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=350V, I_D=8A, V_{GS}=10V$	-	14	21	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	2	3	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	12	18	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{DS}=350V, R_G=25\Omega, V_{GS}=10V, I_D=8A$	-	14	21	nS
Rise Time ^{2,3}	t_r		-	34	51	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	48	72	
Fall Time ^{2,3}	t_f		-	25	38	
Input Capacitance	C_{iss}	$V_{DS}=350V, V_{GS}=0V, F=1\text{MHz}$	-	450	675	pF
Output Capacitance	C_{oss}		-	16	24	
Reverse Transfer Capacitance	C_{rss}		-	2	5	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	27	-	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	8	A
Pulsed Source Current	I_{SM}		-	-	16	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}\text{C}$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$V_R=400V, I_S=4A, di/dt=100A/\mu\text{s}, T_J=25^{\circ}\text{C}$	-	230	-	nS
Reverse Recovery Charge	Q_{rr}		-	2	-	nC

Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

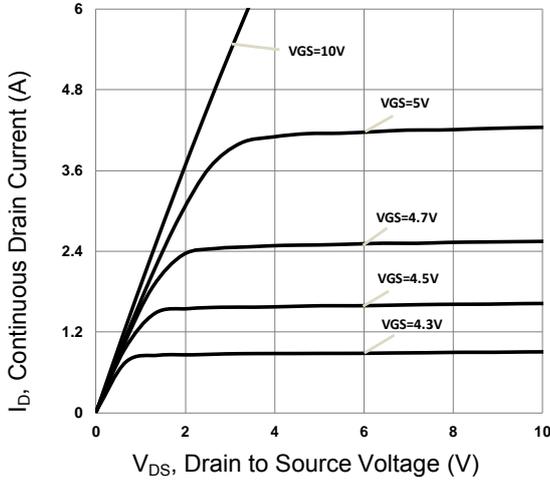


Figure 1. Typical Output Characteristics

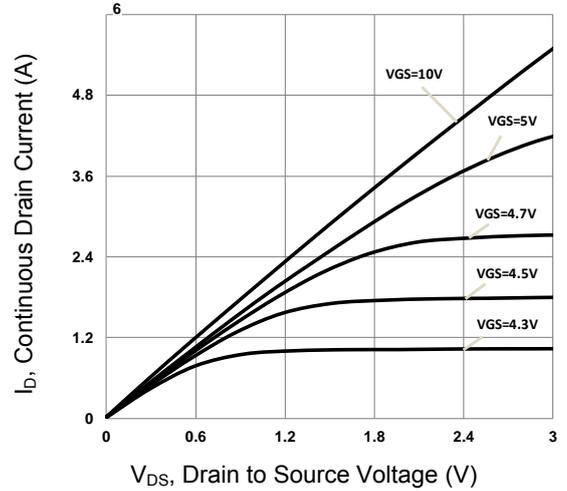


Figure 2. Typical Output Characteristics

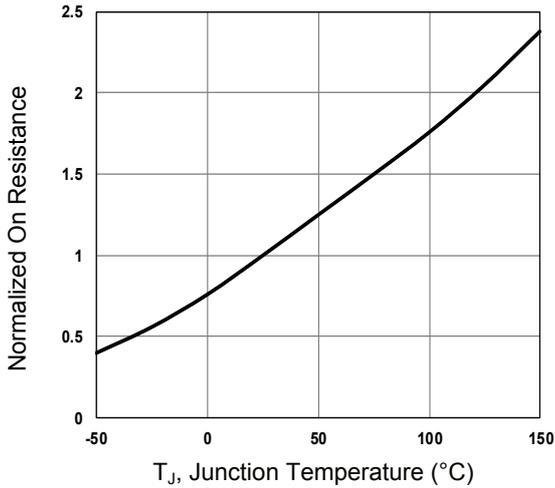


Figure 3. Normalized R_{DSON} vs. T_J

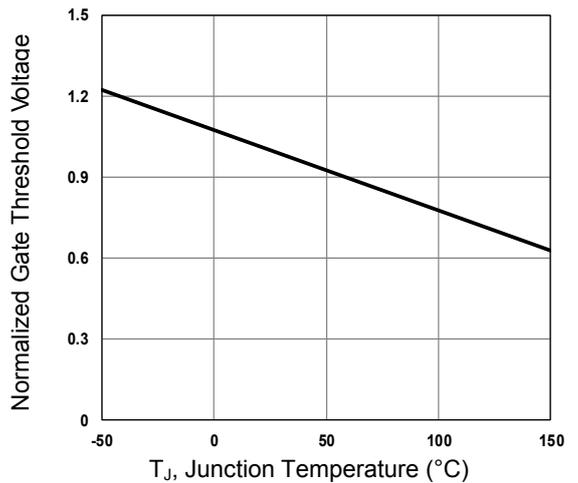


Figure 4. Normalized V_{th} vs. T_J

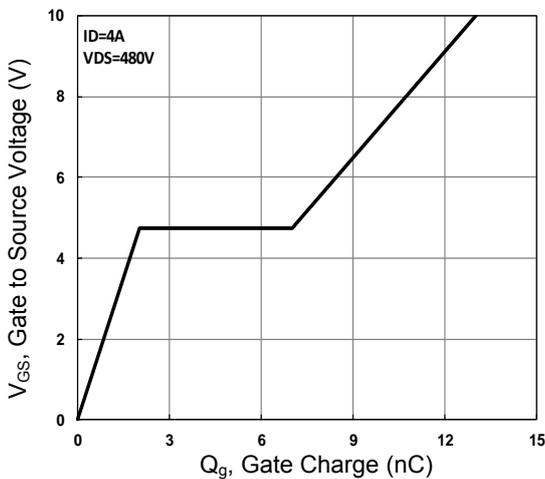


Figure 5. Gate Charge Characteristics

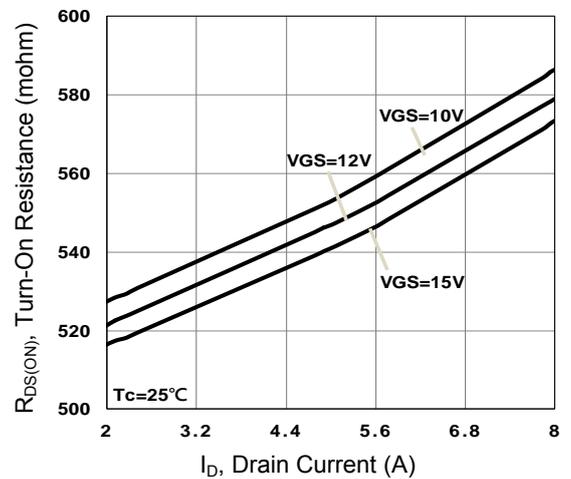


Figure 6. Turn-On Resistance vs. I_D

Typical Electrical and Thermal Characteristic Curves

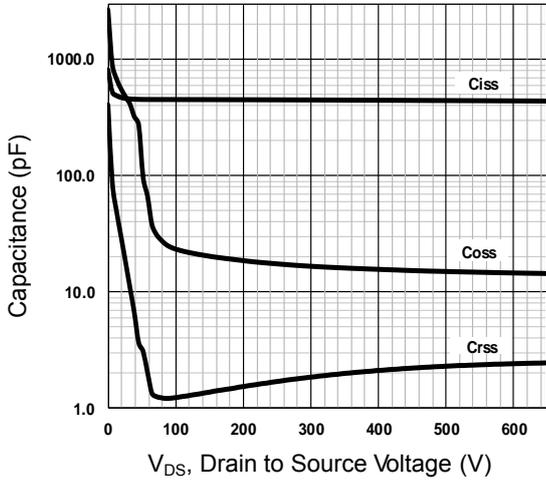


Figure 7. Capacitance Characteristics

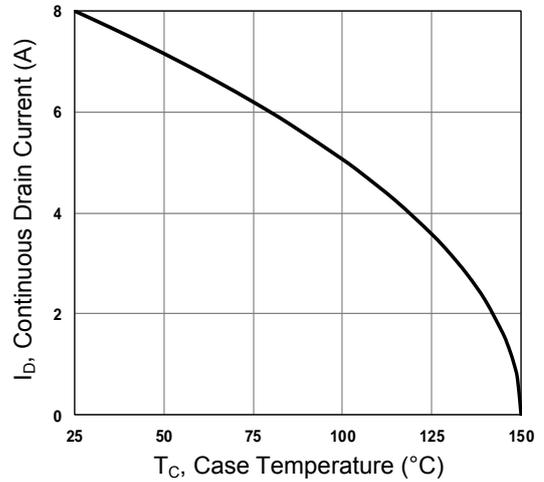


Figure 8. Continuous Drain Current vs. T_C

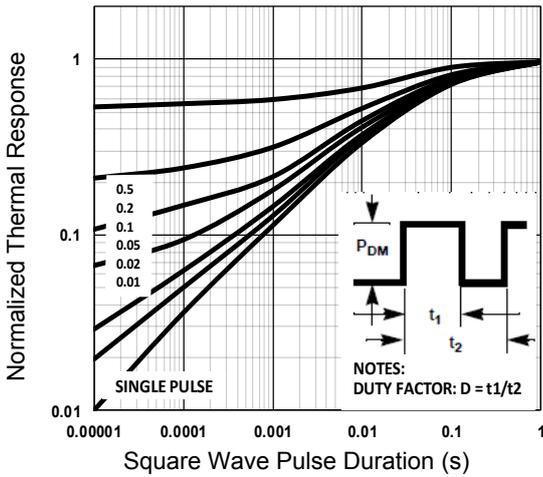


Figure 9. Normalized Transient Impedance

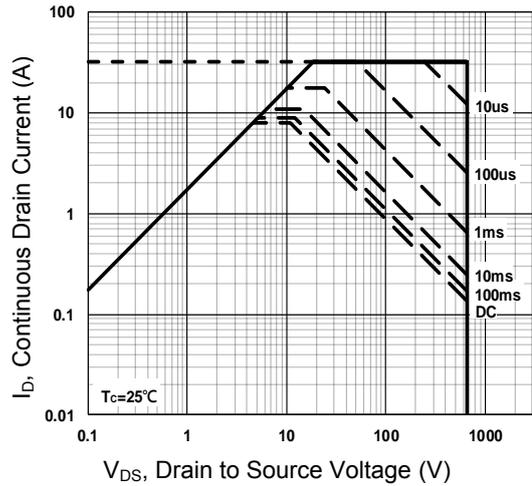


Figure 10. Maximum Safe Operation Area

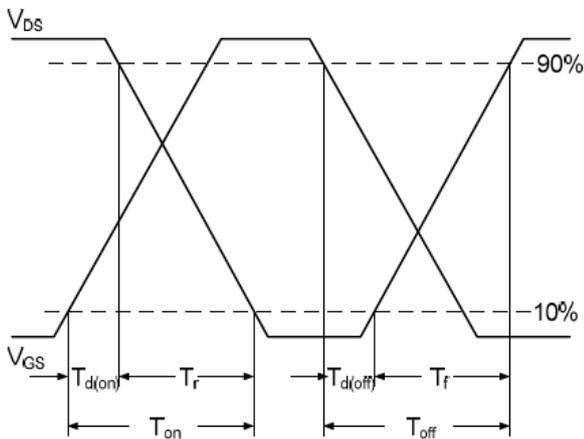


Figure 11. Switching Time Waveform

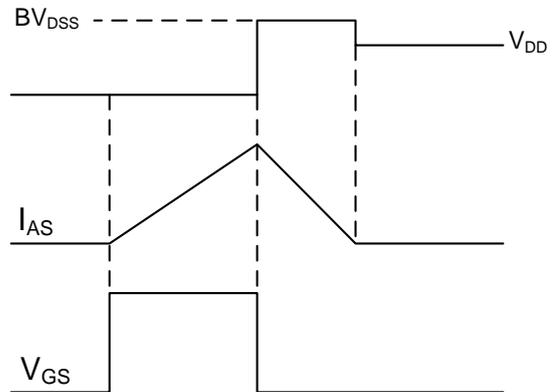
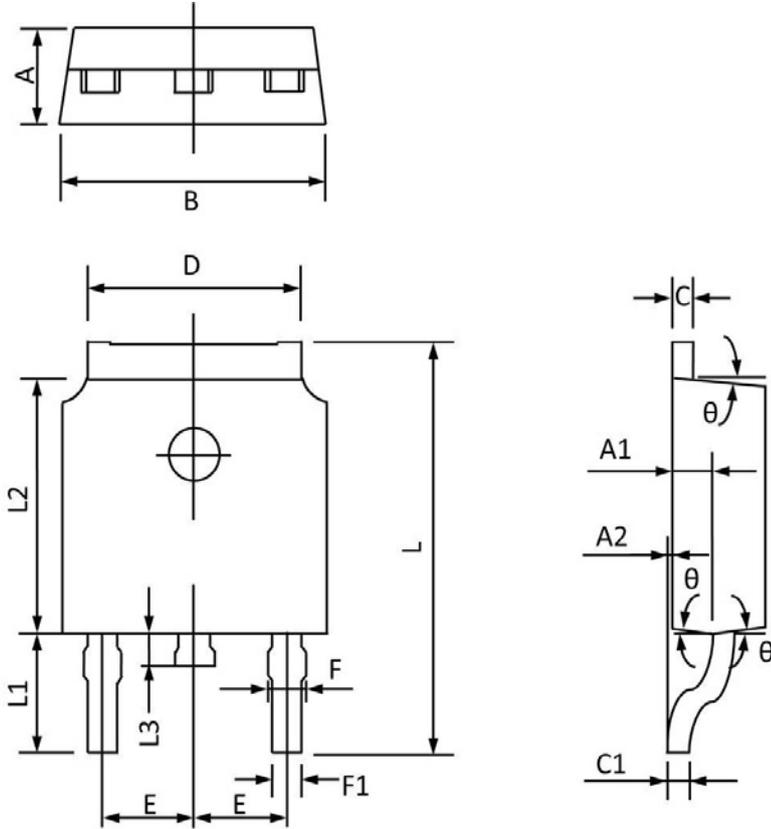


Figure 12. EAS Waveform

Package Outline Dimensions TO-252 (DPAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	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°