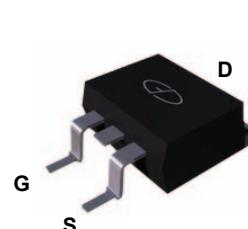
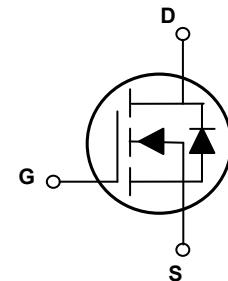


Main Product Characteristics

$V_{(BR)DSS}$	800V
$R_{DS(ON)}$	1.32Ω (Typ.)
I_D	8A


TO-263 (D²PAK)


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 GSFT8008 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous, $V_{GS} @ 10\text{V}$ ($T_C=25^\circ\text{C}$)	I_D	8	A
Drain Current-Continuous, $V_{GS} @ 10\text{V}$ ($T_C=100^\circ\text{C}$)		5.1	
Drain Current-Pulsed ²	I_{DM}	32	A
Single Pulse Avalanche Energy @ $L=25\text{mH}$	E_{AS}	760	mJ
Single Pulse Avalanche Current @ $L=25\text{mH}$	I_{AS}	7.8	A
Power Dissipation ³ ($T_C=25^\circ\text{C}$)	P_D	150	W
Linear Derating Factor ($T_C=25^\circ\text{C}$)		1.2	W/ $^\circ\text{C}$
Junction-to-Ambient ($t \leq 10\text{s}$) ⁴	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Junction-to-Ambient (PCB Mounted, Steady-State) ⁴		40	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case ³	$R_{\theta JC}$	0.82	$^\circ\text{C}/\text{W}$
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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_D=250\mu\text{A}$	800	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{\text{DS}}=800\text{V}, V_{\text{GS}}=0\text{V}$	-	-	1	μA
		$T_J=125^\circ\text{C}$	-	-	50	
Gate-Source Forward Leakage	I_{GSS}	$V_{\text{GS}}=\pm 30\text{V}$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{\text{DS}(\text{ON})}$	$V_{\text{GS}}=10\text{V}, I_D=3.5\text{A}$	-	1.32	1.56	Ω
		$T_J=125^\circ\text{C}$	-	3.07	-	
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{GS}}=V_{\text{DS}}, I_D=250\mu\text{A}$	2	3	4	V
		$T_J=125^\circ\text{C}$	-	1.93	-	
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	$V_{\text{DS}}=400\text{V}, I_D=8\text{A}, V_{\text{GS}}=10\text{V}$	-	24	-	nC
Gate-Source Charge	Q_{gs}		-	7.2	-	
Gate-Drain ("Miller") Charge	Q_{gd}		-	9.7	-	
Turn-On Delay Time	$t_{\text{d}(\text{on})}$	$V_{\text{DS}}=400\text{V}, R_L=50\Omega, V_{\text{GS}}=10\text{V}, I_D=8\text{A}, R_{\text{GEN}}=25\Omega$	-	20	-	nS
Rise Time	t_r		-	37	-	
Turn-Off Delay Time	$t_{\text{d}(\text{off})}$		-	59	-	
Fall Time	t_f		-	36	-	
Input Capacitance	C_{iss}	$V_{\text{DS}}=25\text{V}, V_{\text{GS}}=0\text{V}, F=1\text{MHz}$	-	1106	-	pF
Output Capacitance	C_{oss}		-	121	-	
Reverse Transfer Capacitance	C_{rss}		-	5.2	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode)	I_s	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	8	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	32	A
Diode Forward Voltage	V_{SD}	$V_{\text{GS}}=0\text{V}, I_s=8\text{A}$	-	0.74	1.4	V
Reverse Recovery Time	t_{rr}	$T_J=25^\circ\text{C}, I_F=8\text{A}, dI/dt=100\text{A}/\mu\text{s}$	-	968	-	nS
Reverse Recovery Charge	Q_{rr}		-	5456	-	nC

Note:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.

Typical Electrical and Thermal Characteristic Curves

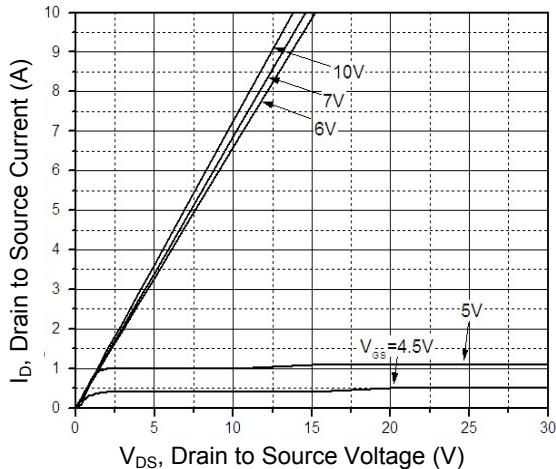


Figure 1. Typical Output Characteristics

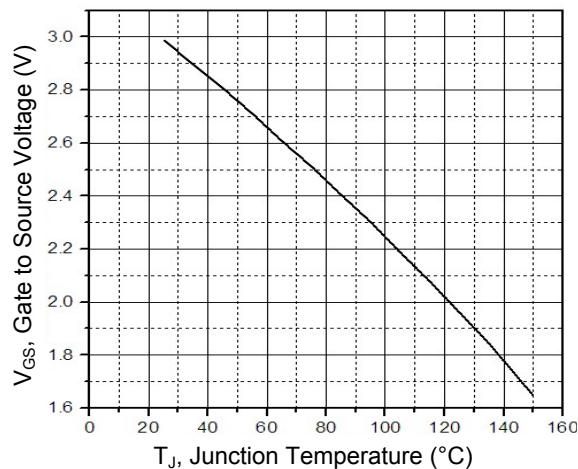


Figure 2. Gate to Source Cut-Off Voltage

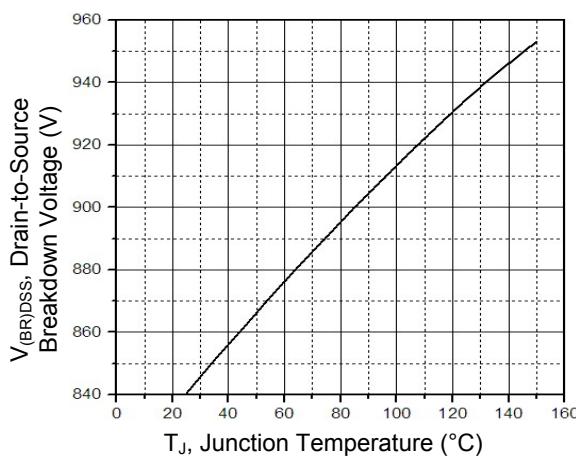


Figure 3. Drain-to-Source Breakdown Voltage vs. Case Temperature

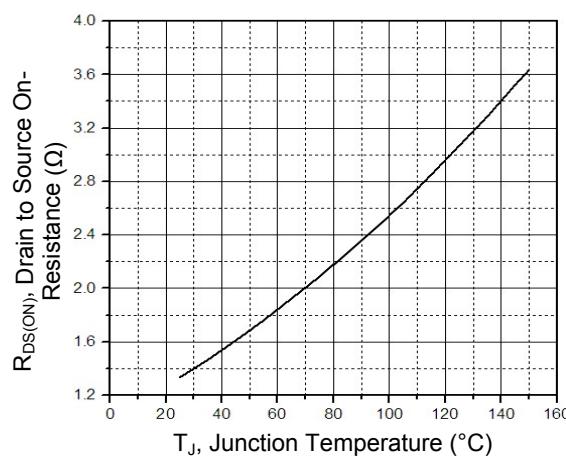


Figure 4. Normalized On-Resistance vs. Junction Temperature

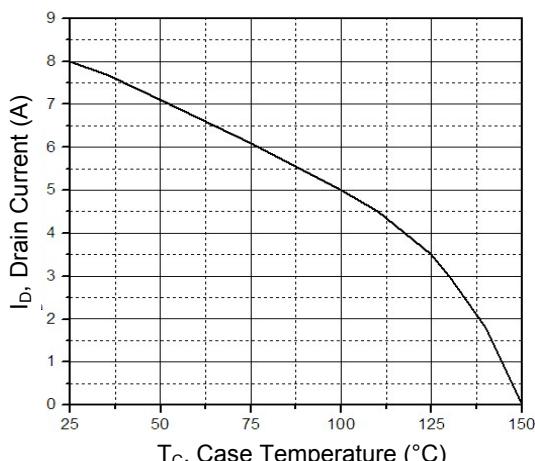


Figure 5. Maximum Drain Current vs. Case Temperature

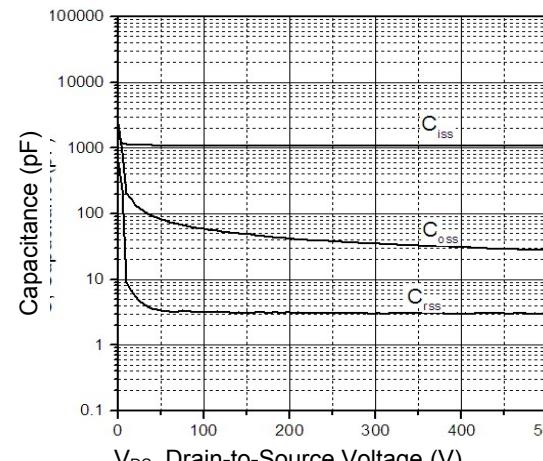


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

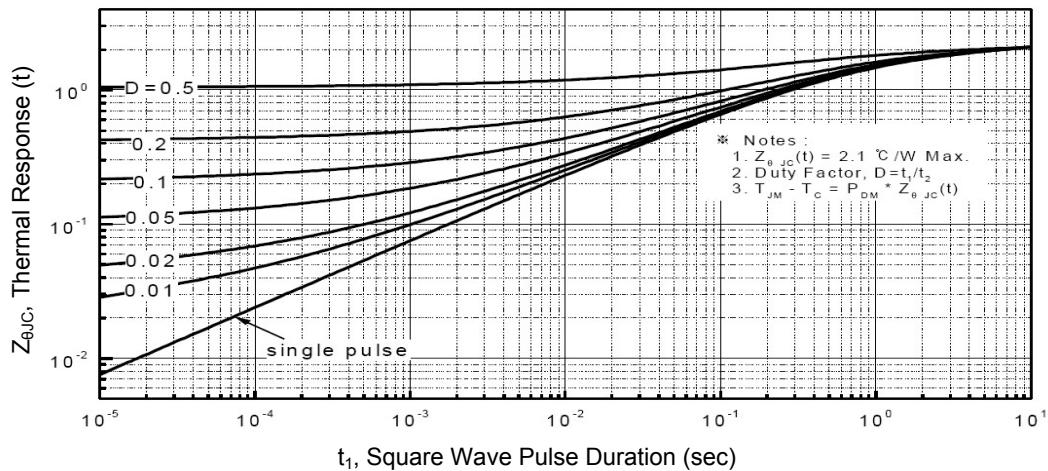
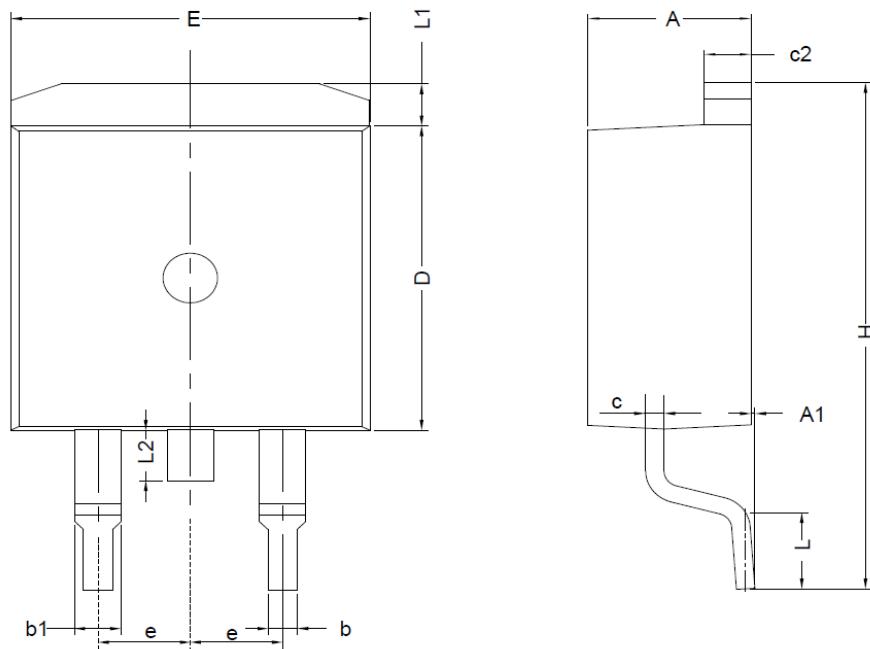


Figure 7. Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.720	0.169	0.186
A1	0.000	0.250	0.000	0.010
b	0.710	0.910	0.028	0.036
b1	1.170	1.500	0.046	0.059
c	0.300	0.600	0.012	0.024
c2	1.170	1.370	0.046	0.054
D	8.500	9.350	0.335	0.368
E	9.800	10.450	0.386	0.411
e	2.540 BSC		0.100 BSC	
H	14.700	15.750	0.579	0.620
L	2.000	2.740	0.079	0.108
L1	1.120	1.420	0.044	0.056
L2	-	1.750	-	0.069