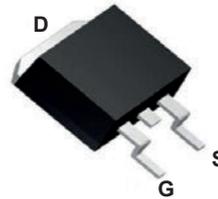
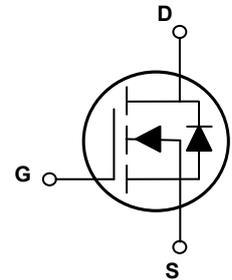


Main Product Characteristics

$V_{(BR)DSS}$	150V
$R_{DS(ON)}$	7.3m Ω (Typ.)
I_D	100A



TO-263



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 GSFT9R015 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°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State (T _C =25°C) ¹	I_D	100	A
Continuous Drain Current, @ Steady-State (T _C =100°C)		63	A
Pulsed Drain Current ²	I_{DM}	400	A
Power Dissipation (T _C =25°C)	P_D	178	W
Linear Derating Factor (T _C =25°C)		1.4	W/°C
Single Pulse Avalanche Energy ³	E_{AS}	784	mJ
Junction-to-Case	$R_{\theta JC}$	0.7	°C/W
Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	50	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$	-	-	1	μA
		$T_J=125^\circ C$	-	-	50	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=20V$	-	-	100	nA
		$V_{GS}=-20V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	-	7.3	9	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.1	3	3.9	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=75V$ $F=1MHz$	-	5870	-	μF
Output Capacitance	C_{oss}		-	404	-	
Reverse Transfer Capacitance	C_{rss}		-	9.3	-	
Total Gate Charge	Q_g	$I_D=20A, V_{DS}=75V,$ $V_{GS}=10V$	-	100	-	nC
Gate-to-Source Charge	Q_{gs}		-	24.9	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	30.8	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=30V,$ $I_D=1A, R_{GEN}=3.3\Omega$	-	32	-	nS
Rise Time	t_r		-	25	-	
Turn-Off Delay Time	$t_{d(off)}$		-	97	-	
Fall Time	t_f		-	89	-	
Gate Resistance	R_g	$F=1MHz$	-	1.9	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	100	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	400	A
Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$	-	1	1.2	V

Note:

1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $L=0.5mH, R_G=25\Omega, V_{DD}=50V, I_{AS}=56A, T_J=25^\circ C$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

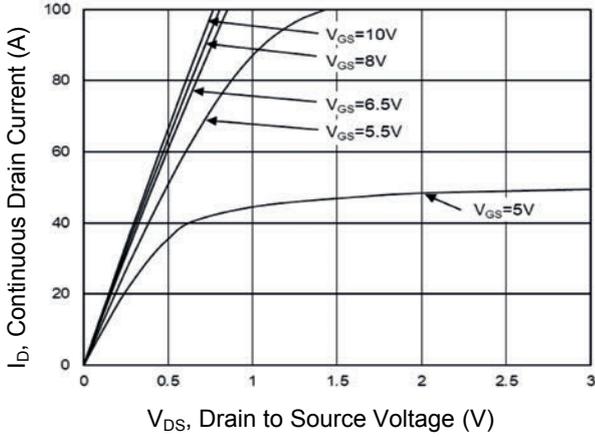


Figure 1. Typical Output Characteristics

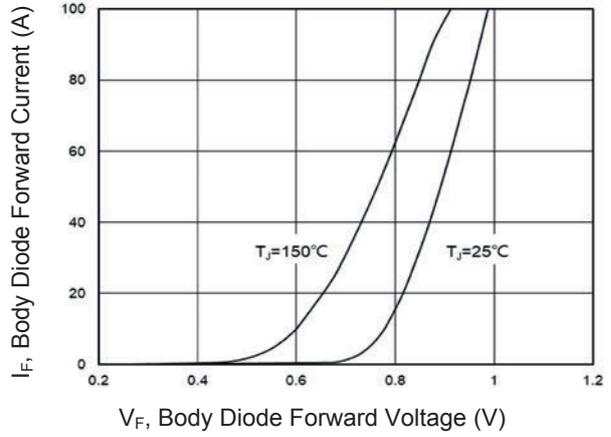


Figure 2. Body Diode Characteristics

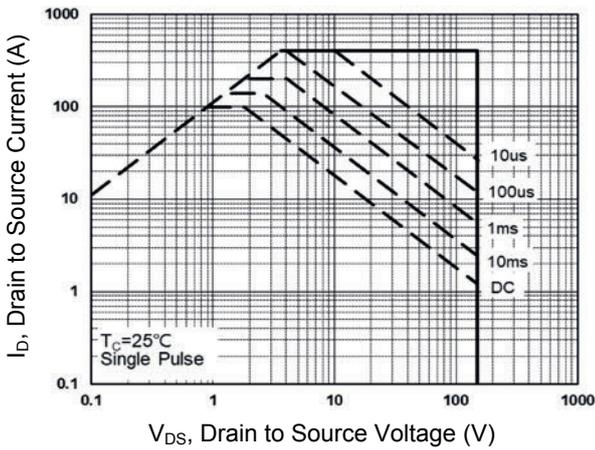


Figure 3. Safe Operation Area

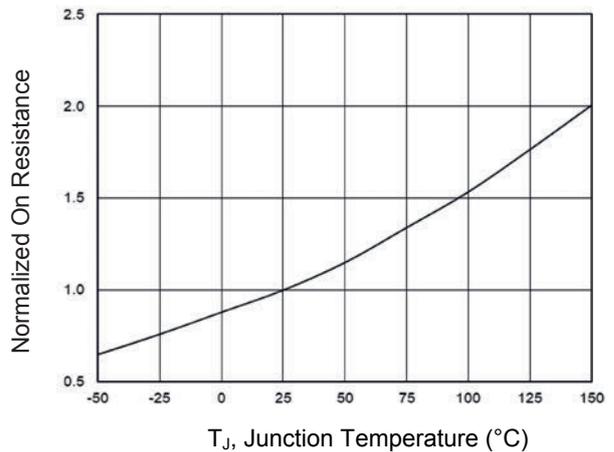


Figure 4. Normalized $R_{DS(ON)}$ Vs. T_J

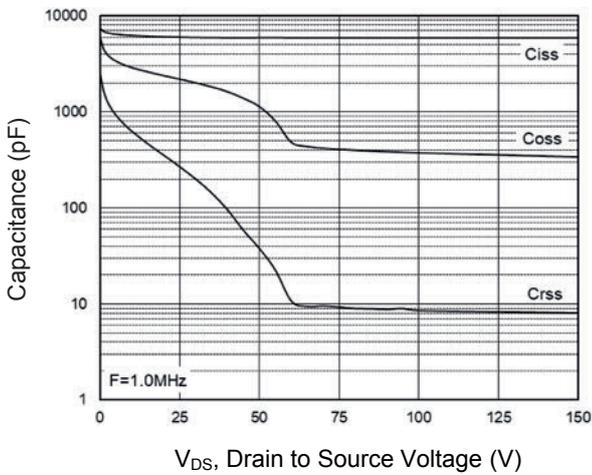


Figure 5. Capacitance Characteristics

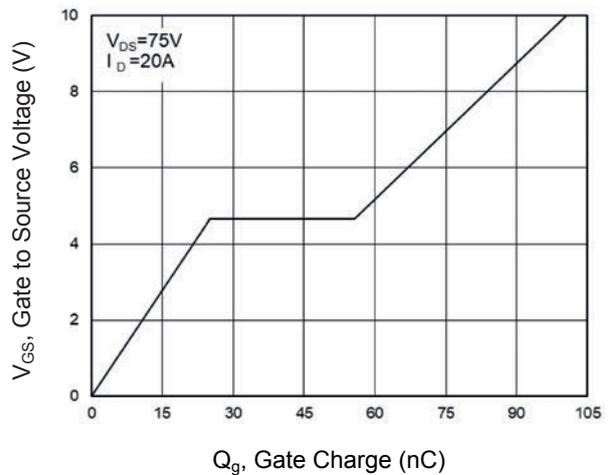
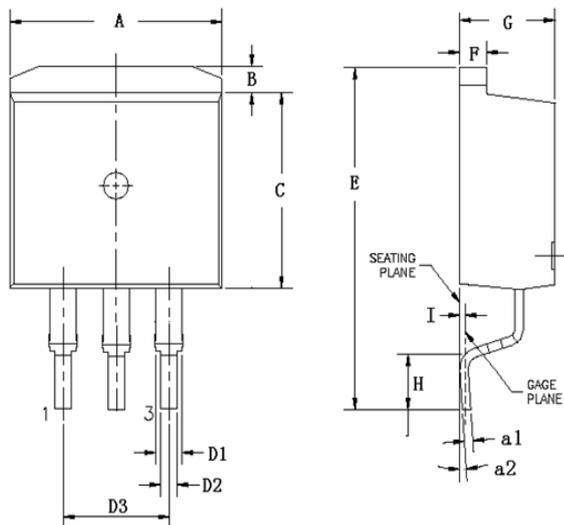


Figure 6. Gate Charge Characteristics

Package Outline Dimensions TO-263(D2PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	9.66	10.28	0.380	0.405
B	1.02	1.32	0.040	0.052
C	8.59	9.40	0.339	0.370
D1	1.14	1.40	0.045	0.055
D2	0.70	0.90	0.028	0.037
D3	5.08 TYP.		0.200 TYP.	
E	15.09	15.39	0.594	0.606
F	1.15	1.40	0.045	0.055
I	0.25 TYP.		0.010 TYP.	
G	4.30	4.70	0.169	0.185
H	2.29	2.79	0.090	0.110
K	1.30	1.60	0.051	0.063
a1	0.45	0.65	0.018	0.026
a2	0°	8°	0°	8°