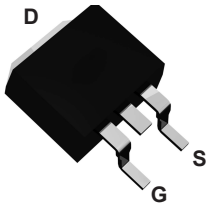
GOOD-ARK SEMICONDUCTOR

GSFT3410

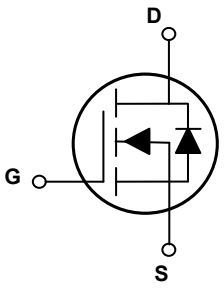
100V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	82mΩ (Max.)
I_D	28A



TO-263 (D^2PAK)



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 GSFT3410 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}	100	V
Gate-to-Source Voltage	V_{GS}	±16	V
Continuous Drain Current, @ Steady-State (T_C=25°C)	I_D	28	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		20	A
Pulsed Drain Current	I_{DM}	60	A
Power Dissipation (T_C=25°C)	P_D	150	W
		1.0	W/°C
Single Pulse Avalanche Energy[1]	E_{AS}	150	mJ
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.0	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +175	°C

Electrical Characteristics (T_C=25°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=250μA	100	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	1.0	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=16V	-	-	100	nA
		V_{DS}=0V, V_{GS}=-16V	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A	-	68	82	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.0	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	772	-	pF
Output Capacitance	C_{oss}		-	161	-	
Reverse Transfer Capacitance	C_{rss}		-	40.3	-	
Total Gate Charge[2,3]	Q_g	I_D=9A, V_{DS}=80V, V_{GS}=5V	-	17.52	-	nC
Gate-to-Source Charge[2,3]	Q_{gs}		-	2.42	-	
Gate-to-Drain ("Miller") Charge[2,3]	Q_{gd}		-	10.32	-	
Turn-On Delay Time[2,3]	$t_{d(on)}$	V_{DD}=50V, V_{GS}=5V, I_D=9A, R_g=6Ω	-	8.0	-	nS
Rise Time[2,3]	t_r		-	47	-	
Turn-Off Delay Time[2,3]	$t_{d(off)}$		-	40.67	-	
Fall Time[2,3]	t_f		-	20.2	-	
Drain-Source Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	28	A
Diode Pulse Current	I_{SM}		-	-	60	A
Diode Forward Voltage	V_{SD}	I_S=10A, V_{GS}=0V	-	-	1.3	V
Reverse Recovery Time[2]	t_{rr}	I_S=9A, V_{DD}=50V, dI_F/dt=100A/us	-	85.5	-	nS
Reverse Recovery Charge[2]	Q_{rr}		-	0.24	-	μC

Note:

1. L=3.1mH, I_{AS}=9.0A, R_G=25Ω, starting temperature T_J=25°C .
2. Pulse test : pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

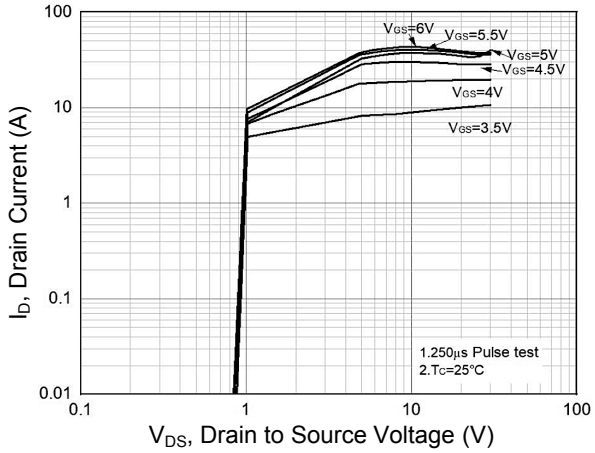


Figure 1. Typical Output Characteristics

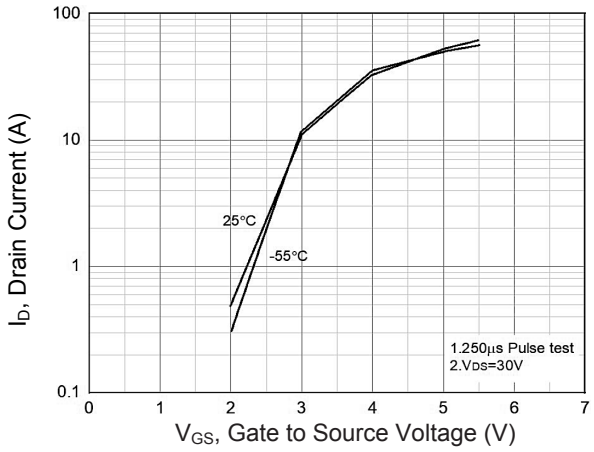


Figure 2. Transfer Characteristics

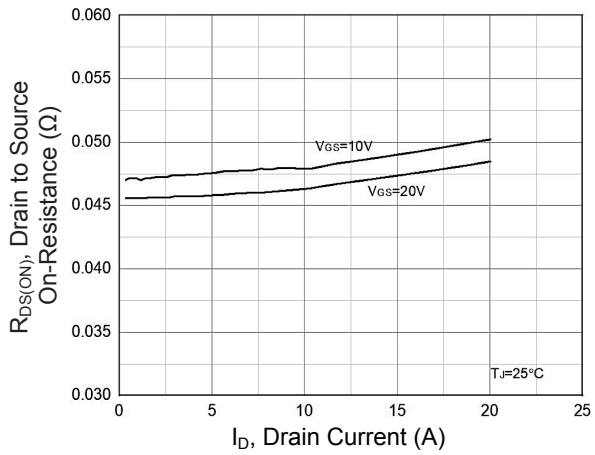


Figure 3. Transfer Characteristics

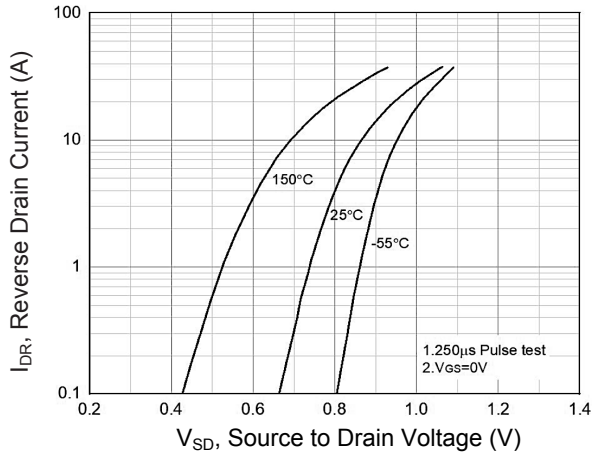


Figure 4. Body Diode Characteristic

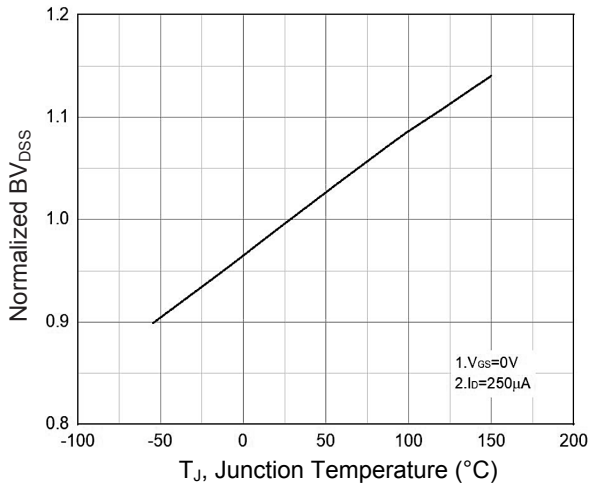


Figure 5. Normalized BV_{DSS} vs. T_J

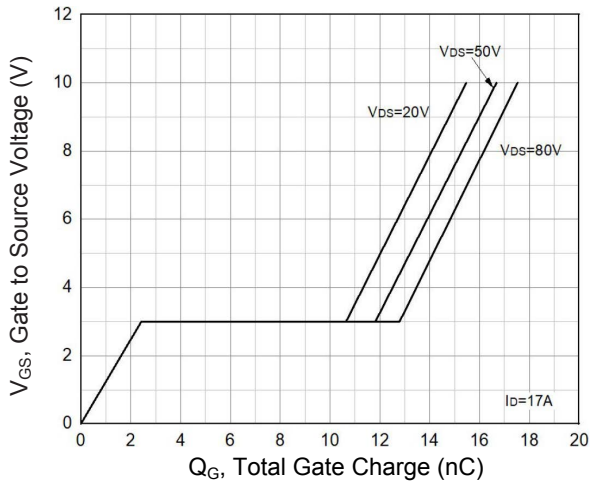


Figure 6. Gate Charge Characteristic

Typical Electrical and Thermal Characteristic Curves

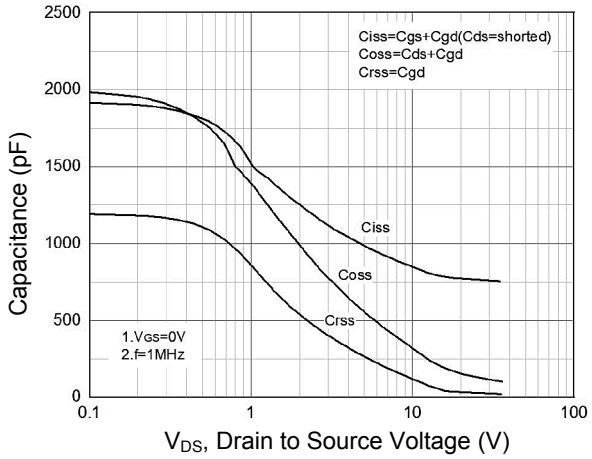


Figure 7. Capacitance Characteristic

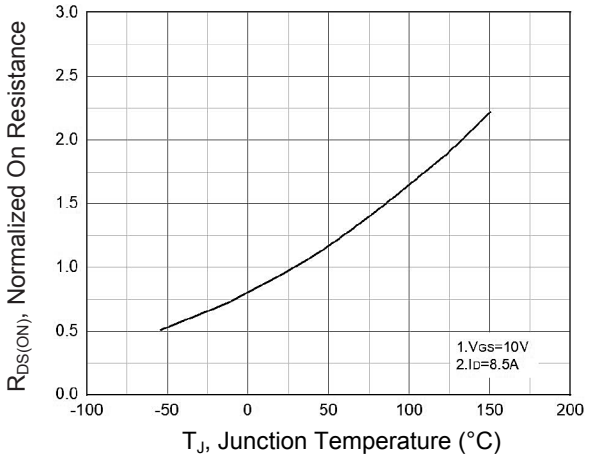


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

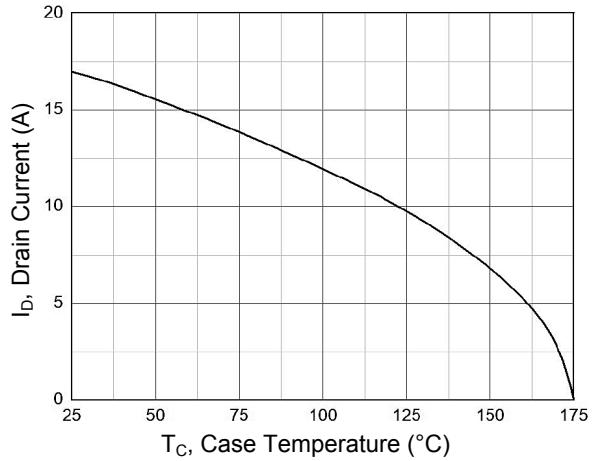


Figure 9. Drain Current vs. T_C

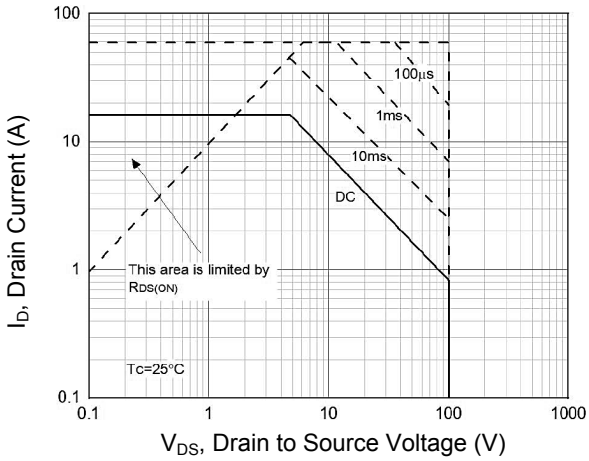
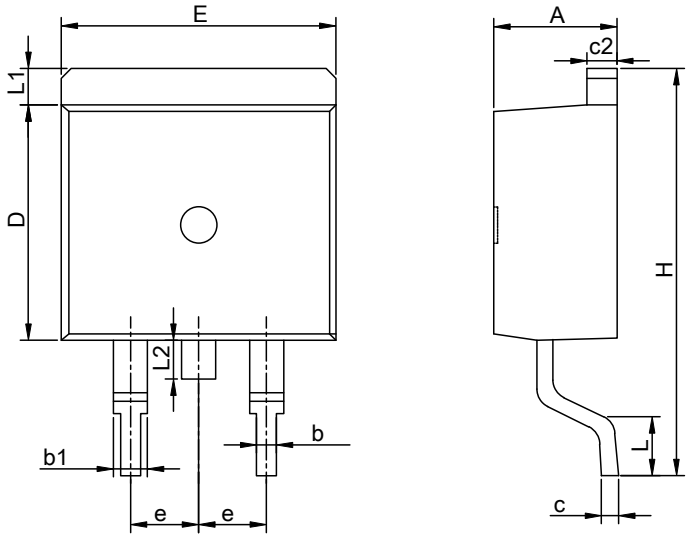


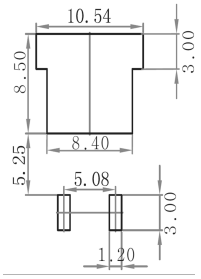
Figure 10. Safe Operation Area

Package Outline Dimensions TO-263 (D^2PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.90	0.169	0.193
b	0.70	0.95	0.028	0.037
b1	1.07	1.50	0.042	0.059
c	0.28	0.60	0.011	0.024
c2	1.17	1.37	0.046	0.054
D	8.40	9.35	0.331	0.368
E	9.80	10.45	0.386	0.411
e	2.54 BSC		0.100 BSC	
H	14.70	16.30	0.579	0.642
L	2.00	3.80	0.079	0.150
L1	0.97	1.42	0.038	0.056
L2	-	1.75	-	0.069

Recommended Pad Layout



Unit: mm

Order Information

Device	Package	Marking	Packaging	SPQ
GSFT3410	TO-263 (D^2PAK)	T3410	Tape & Reel	800 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com