

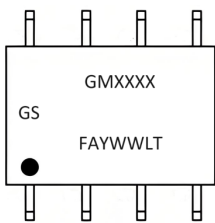
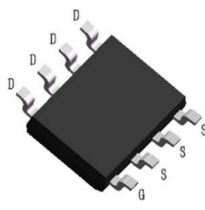
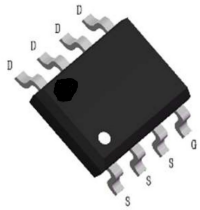
Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (mΩ)	I_D (A)
-30	19 @ $V_{GS} = -10V$	-10

Features

- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed
- 100% avalanche tested

View and Internal Schematic Diagram



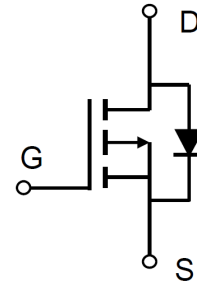
SOP-8

NOTE:
 LOGO - GS
 GMXXXX - Part number code
 F - Fab location code
 A - Assembly location code
 Y - Year code
 WW - Week code
 L&T - Assembly lot code

Application

- Lithium battery protection
- Load Switch
- Mobile phone fast charging

Equivalent circuit



Absolute maximum rating@25°C

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-10	A
$I_D@T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-7.8	A
I_{DM}	Pulsed Drain Current ²	-30	A
E_{AS}	Single Pulse Avalanche Energy ³	110	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation ⁴	3.1	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristic

Symbol	Parameter	Rating	Units
$R_{\theta JA}$	Thermal Resistance Junction-Ambient 1	75	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	24	°C/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V(BR)DSS	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
IDSS	Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V,$	-	-	-1	μA
IGSS	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
VGS(th)	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.5	-2.0	V
RDS(on)	Static Drain-Source on-Resistance	$V_{GS}=-10V, I_D=-10A$	-	14.5	19	m Ω
		$V_{GS}=-4.5V, I_D=-5A$	-	21	24	
Ciss	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1200	-	pF
Coss	Output Capacitance		-	296	-	pF
Crss	Reverse Transfer Capacitance		-	283	-	pF
Qg	Total Gate Charge	$V_{DS}=-15V, I_D=-9.1A,$ $V_{GS}=-10V$	-	32	-	nC
Qgs	Gate-Source Charge		-	5.6	-	nC
Qgd	Gate-Drain("Miller") Charge		-	6.9	-	nC
td(on)	Turn-on Delay Time	$V_{DD}=-15V, I_D=-6A,$ $V_{GS}=-10V, R_{GEN}=2.5\Omega$	-	16	-	ns
tr	Turn-on Rise Time		-	21	-	ns
td(off)	Turn-off Delay Time		-	93	-	ns
tf	Turn-off Fall Time		-	61	-	ns
IS	Maximum Continuous Drain to Source Diode Forward Current		-	-	-10	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-40	A
VSD	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=-11A$	-	-0.8	-1.2	V

Note :

- 1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
- 2、The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The EAS data shows Max. rating . The test condition is $V_{DD}=-25V, V_{GS}=-10V, L=0.1mH$
- 4、The power dissipation is limited by 150°C junction temperature
- 5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Performance Characteristics

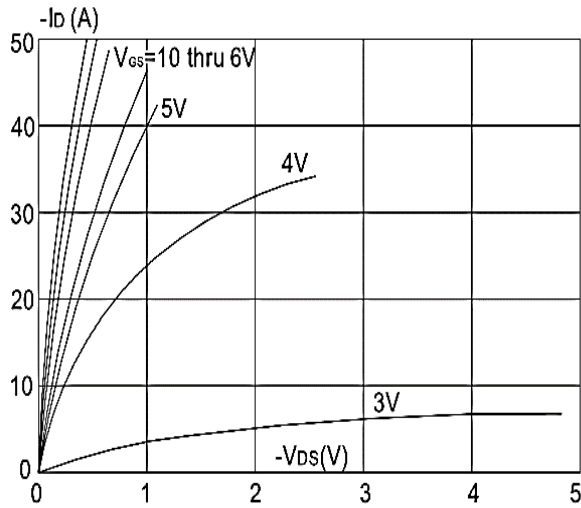


Figure1: Output Characteristics

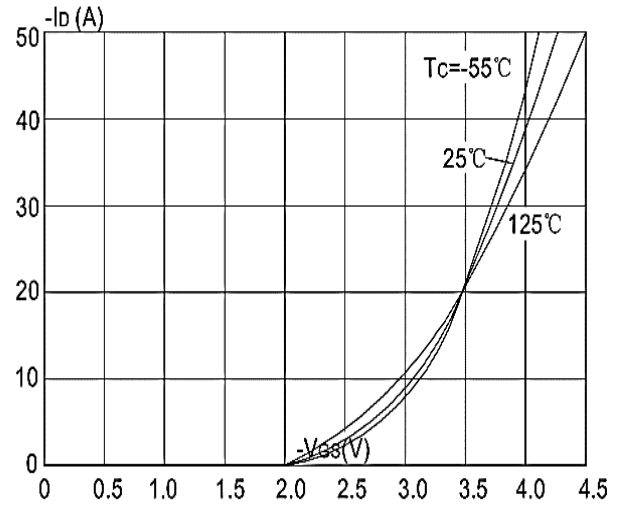


Figure 2: Typical Transfer Characteristics

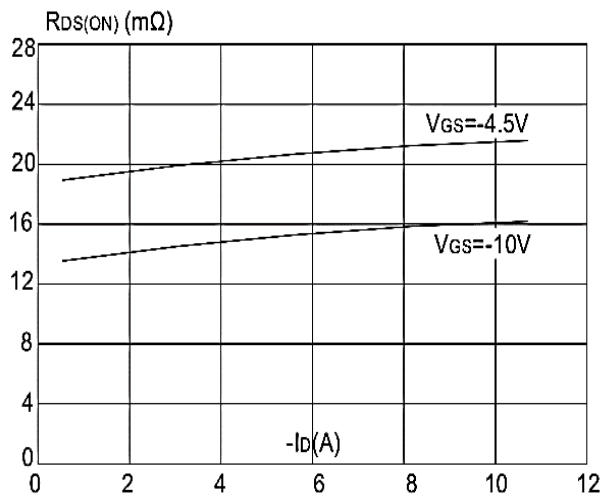


Figure 3: On-resistance vs. Drain Current

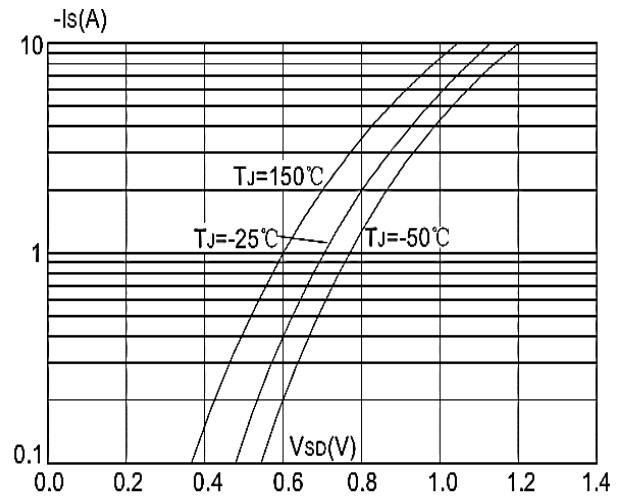


Figure 4: Body Diode Characteristics

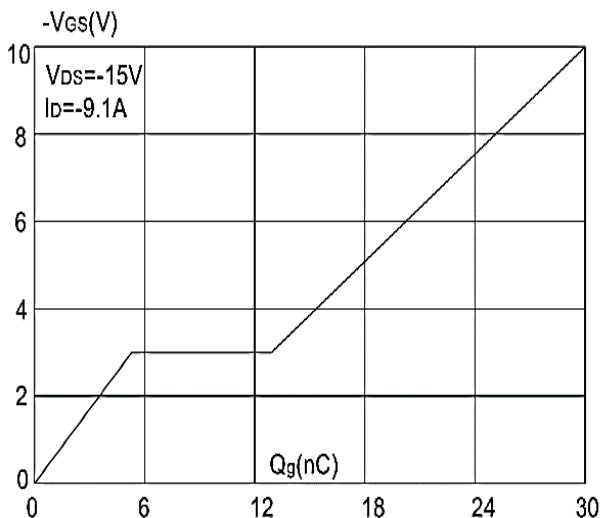


Figure 5: Gate Charge Characteristics

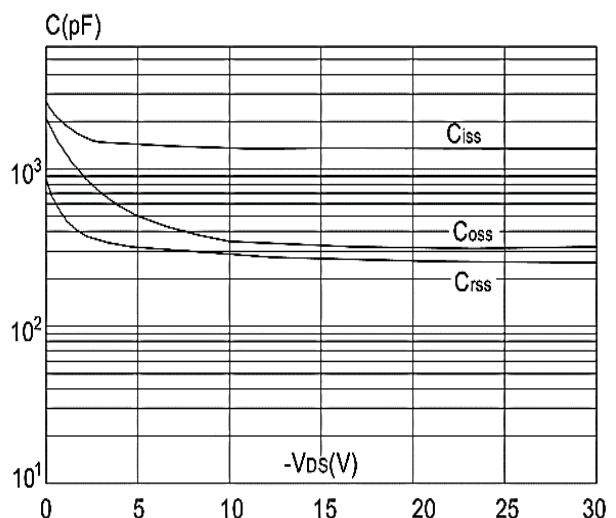
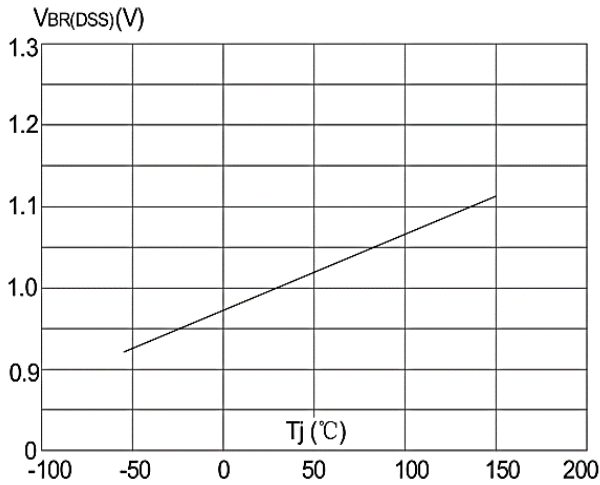
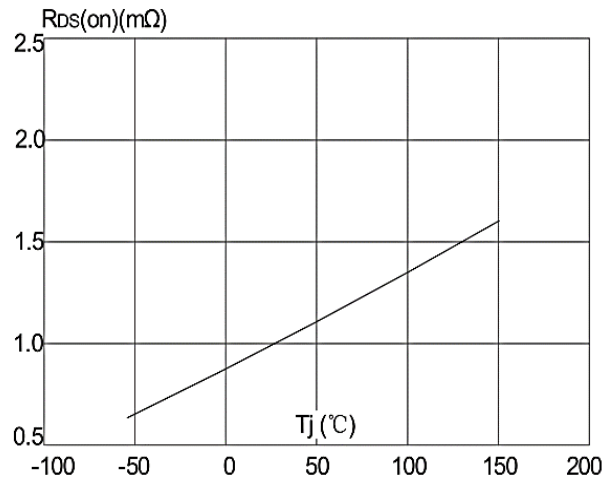
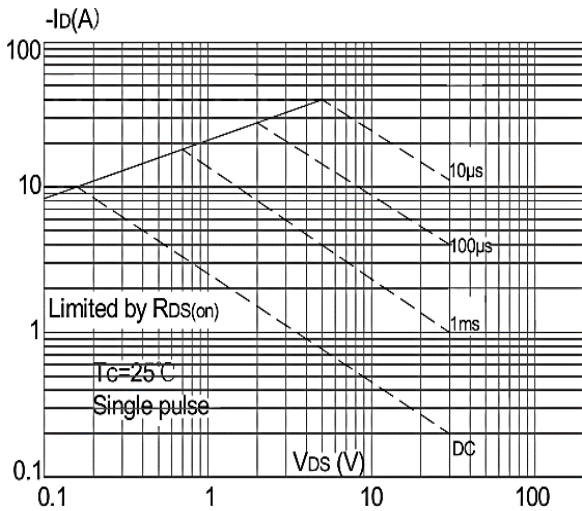
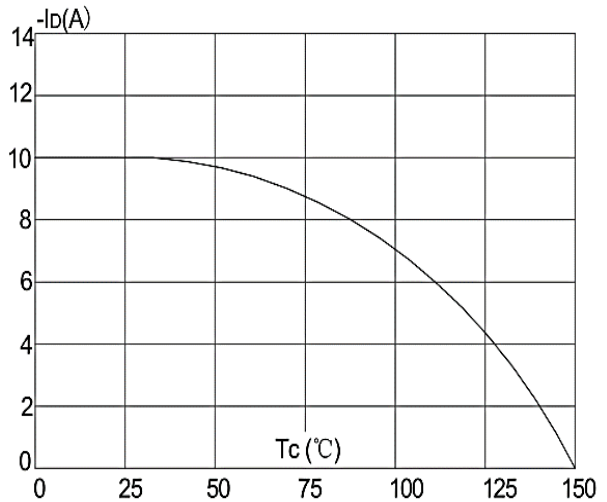
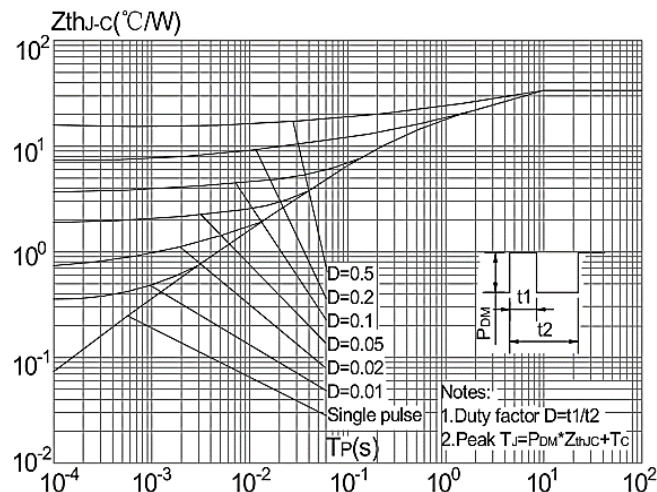
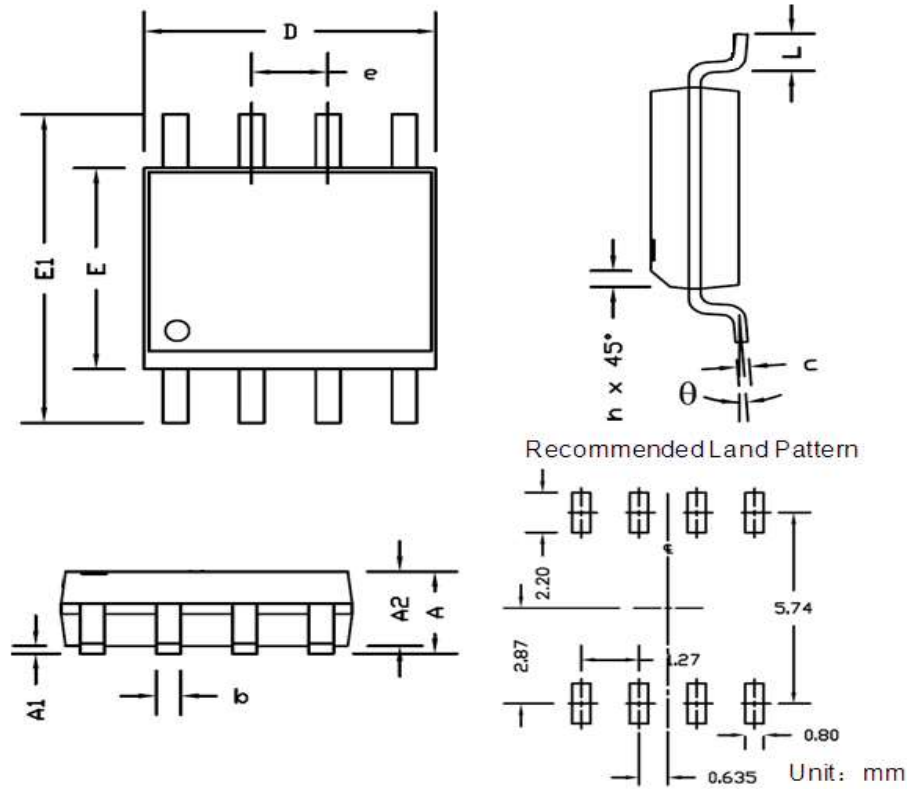


Figure 6: Capacitance Characteristics

**Typical Performance Characteristics****Figure 7: Normalized Breakdown Voltage vs. Junction Temperature****Figure 8: Normalized on Resistance vs. Junction Temperature****Figure 9: Maximum Safe Operating Area****Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature****Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient**

Outline Drawing SOP-8

Package Outline: SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	1.65	0.049	0.065
b	0.33	0.51	0.013	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
e	1.27 BSC.		0.050 BSC.	
E	3.80	4.00	0.150	0.157
E1	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

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