GOSTONE

RoHS COMPLIANT

N-Channel 30V,8.8mΩ max, Power MOSFET

GMT088N03F

Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (mΩ)	I_D (A)
30	8.8 @ V_{GS} = 10V	50 (1)

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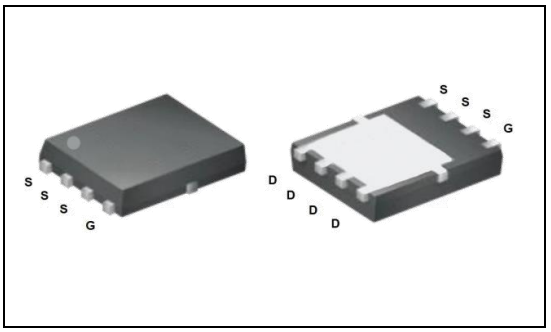
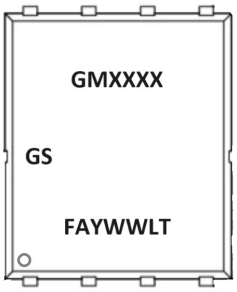


Features

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

Application

- DC/DC conversion
- Power switch
- Motor drives
- Li- Battery Protection



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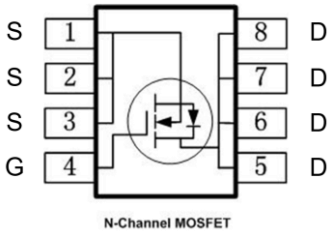
NOTE:
LOGO - GS
GMXXXXX- Part number code
F - Fab location code
A - Assembly location code
Y - Year code
WW - Week code
L&T - Assembly lot code

Equivalent circuit



Absolute maximum rating@25℃

Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	±20	
Continuous drain current	T_C=25℃(1)	I_D	50	A
	T_C=100℃(1)		37	
Pulsed drain current[2]		$I_{D,pulse}$	100	
Avalanche energy, single pulse[3]		E_{AS}	34	mJ
Power dissipation[4]	T_C=25℃	P_D	26	W
Operating junction and storage temperature range		T_J, T_{stg}	-55 to 150	℃

Thermal Characteristic

Parameter		Symbol	Max.	Unit
Thermal resistance, junction-to-case[1]	Steady state	$R_{\theta JC}$	4.7	℃/W
Thermal resistance, junction-to-ambient [1]	Steady state	$R_{\theta JA}$	70	

Electrical Characteristics (TJ=25℃ unless otherwise noted)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static parameter						
Drain to source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0, I_D = 250 μA	30			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1.1	1.5	1.9	V
Gate-body leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} = 60 V, V_{GS} = 0 V			1	μA
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 30 A		6.3	8.8	mΩ
	$R_{DS(on)}$	V_{GS} = 4.5 V, I_D = 30 A		8.2	11	mΩ
Forward transconductance (5)	g_{fs}	V_{DS} = 5 V, I_D = 30 A		40		S
Gate resistance	R_g	f = 1 MHz		3.3		Ω
Dynamic(5)						
Total gate charge V_{GS} = 10V	Q_g	V_{DS} = 15 V, I_D = 15 A, V_{GS} = 10 V		10		nC
Gate-source charge	Q_{gs}			3.5		
Gate-drain charge	Q_{gd}			4.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} = 15 V, I_D = 1 A, V_{GS} = 10 V, R_{GEN} = 6 Ω		9		ns
Rise time	t_r			11		
Turn-off delay time	$t_{d(off)}$			29		
Fall time	t_f			7		
Input capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		1200		pF
Output capacitance	C_{oss}			185		
Reverse transfer capacitance	C_{rss}			113		
Reverse Diode Characteristics (5)						
Diode forward voltage	V_{SD}	V_{GS} = 0 V, I_F = 2 A		0.7	1.2	V
Reverse recovery time	t_{rr}	I_F = 15 A, di/dt = 100 A/μs		15		ns
Reverse recovery charge	Q_{rr}			7		nC

Notes

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper,t≤10sec.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3. The E_{AS} data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=26A
4. The power dissipation is limited by 150°C junction temperature.
5. Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

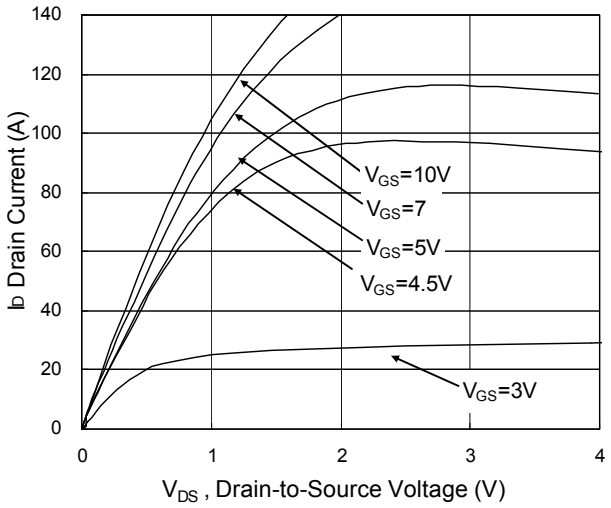


Fig.1 Typical Output Characteristics

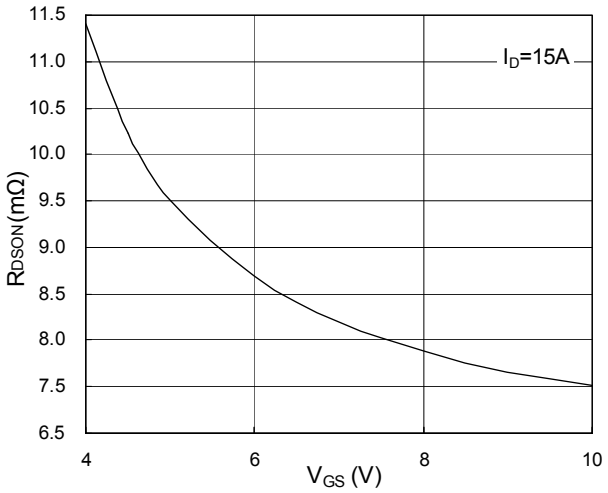


Fig.2 On-Resistance vs. Gate-Source

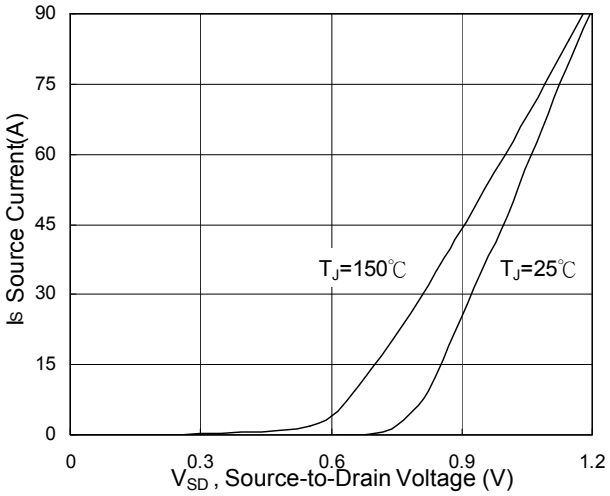


Fig.3 Forward Characteristics of Reverse

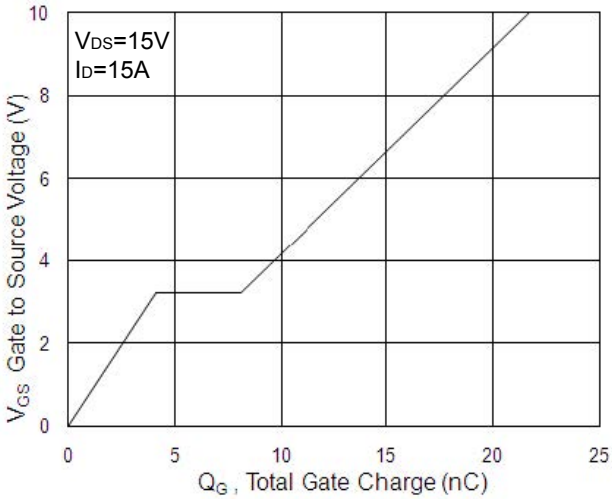


Fig.4 Gate-Charge Characteristics

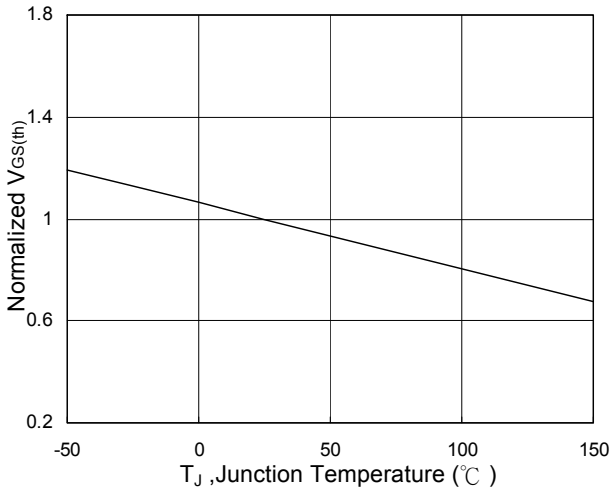


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

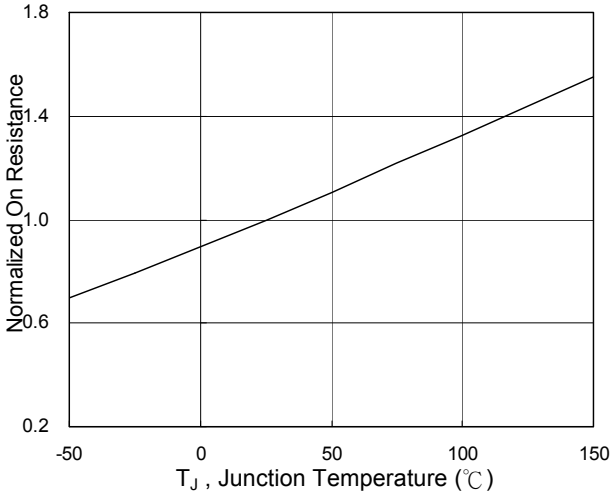


Fig.6 Normalized R_{DSON} vs. T_J

Typical Performance Characteristics

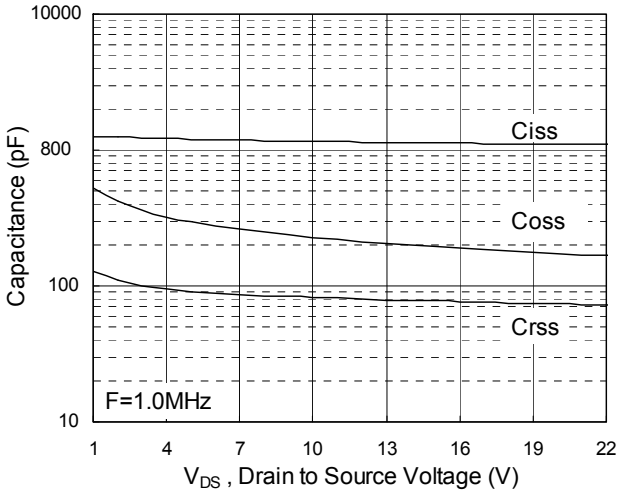


Fig.7 Capacitance

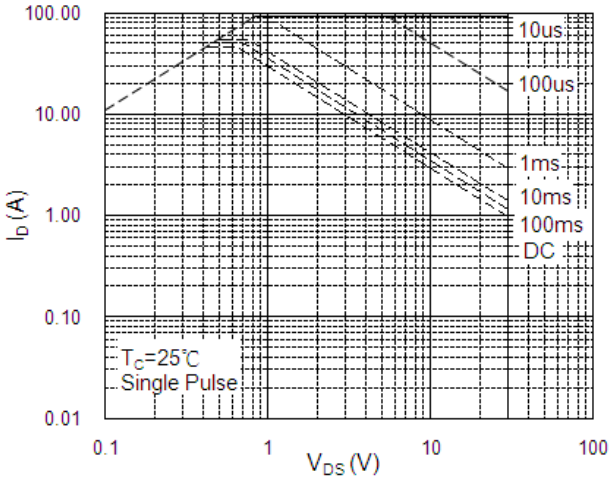


Fig.8 Safe Operating Area

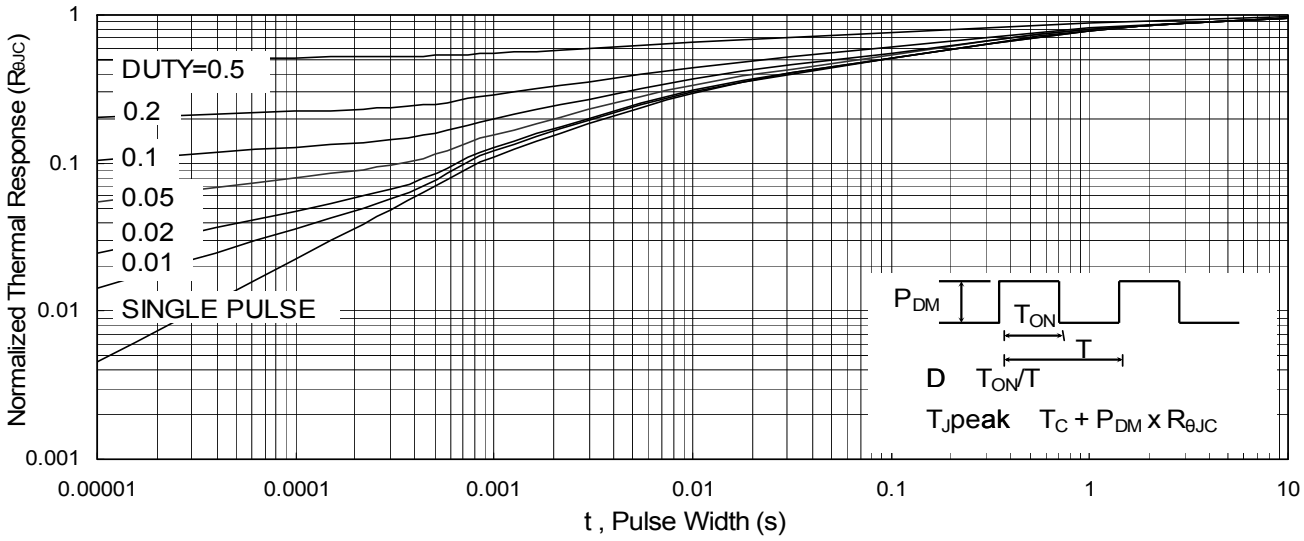
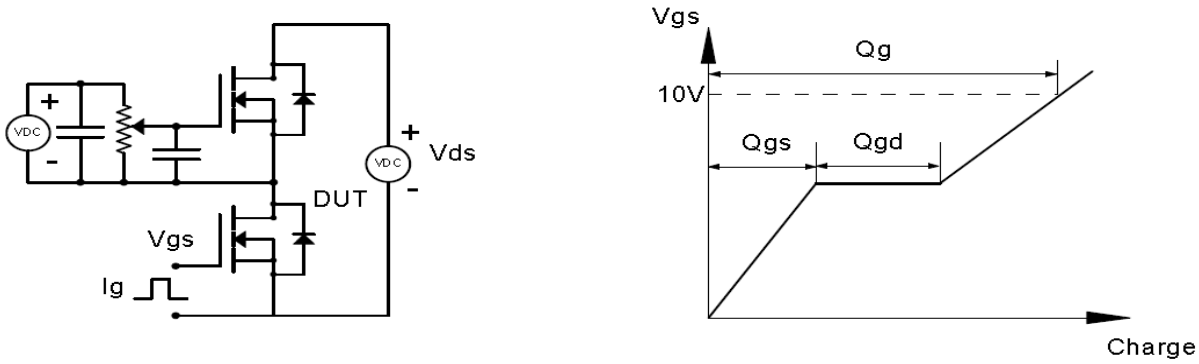


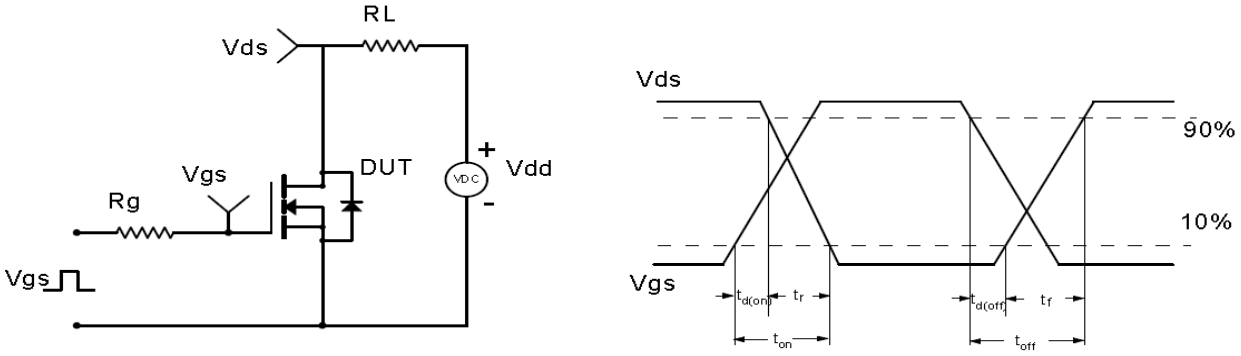
Fig.9 Normalized Maximum Transient Thermal Impedance

Test Circuit & Waveform

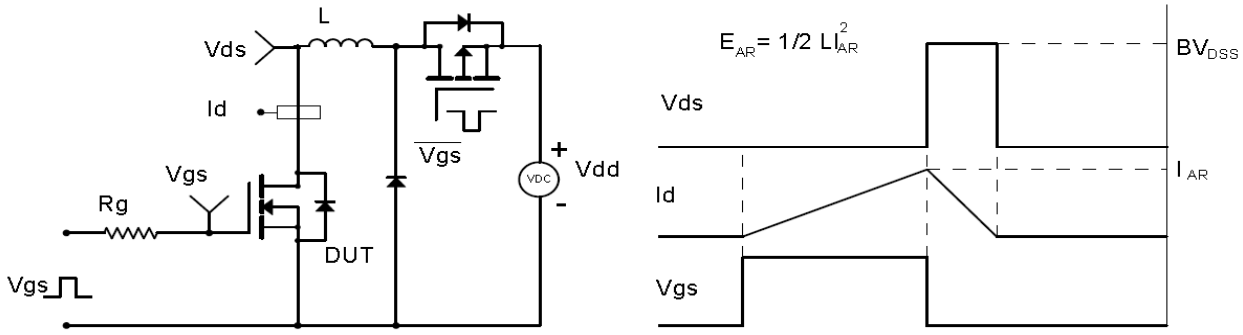
Gate Charge Test Circuit & Waveform



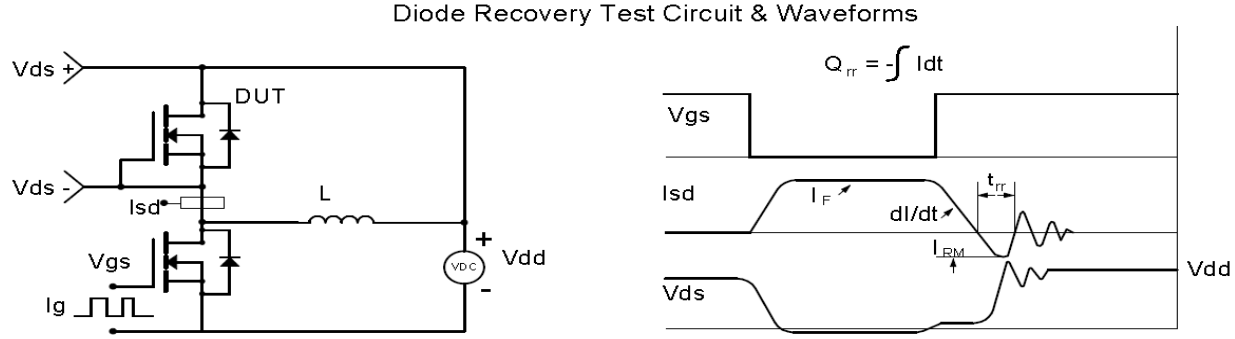
Resistive Switching Test Circuit & Waveforms



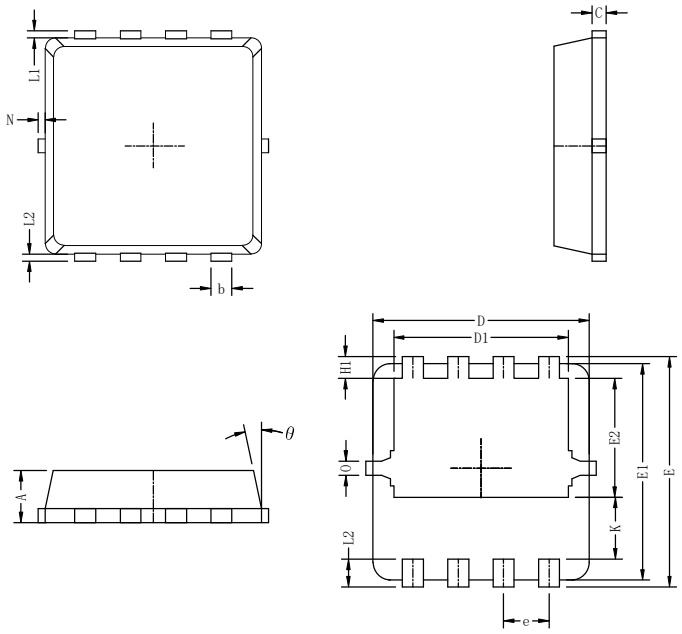
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Outline Drawing PDFN3333



Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.60	1.70	1.80
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.78	0.88	0.98
L1/L2	0.10 REF.		
θ	11°	12°	13°
N	0	-	0.15
O	0.2 REF.		

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