iMF405

N-Channel Enhancement Mode MOSFET

Datasheet

1. Product Information

1.1 Features

- Advanced Trench Cell Design
- RoHS Compliant and Halogen Free
- Moisture Sensitivity Level MSL1



1.2 Package Type

LFPAK5x6-4L

1.3 Quick Reference

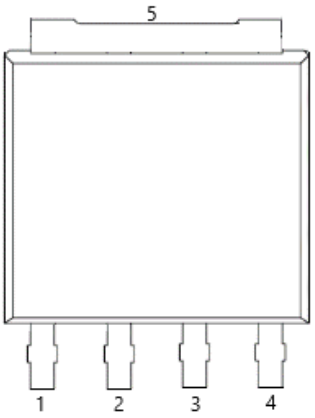
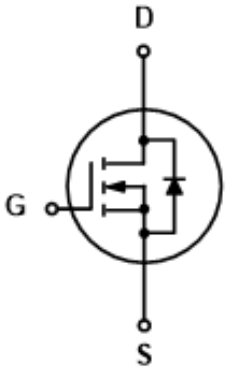
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Limiting Values						
P_{tot}	Total Power Dissipation	T_C = 25 ℃	-	-	333	W
I_{DS}	Drain-Source Current	T_C = 25 ℃, V_{GS} = 10 V	-	-	120	A
		T_C = 100 ℃, V_{GS} = 10 V	-	-	87	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 μA	100	-	-	V
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 μA	2	-	4	
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS} = 10 V, I_{DS} = 30 A	-	6.3	7.9	mΩ
		V_{GS} = 6 V, I_{DS} = 20 A	-	7.0	9.5	

2. Ordering Code & Marking Information

Ordering Code	Marking Information
iMF405	iMF405 XXXXX X: Date Code

© 2026 inergy Technology Inc. All rights reserved.

3. Pin Description

Pin	Description	Simplified Outline	Symbol
1~3	Source (S)		
4	Gate (G)		
5	Drain (D)		

4. Limiting Values

Symbol	Parameter		Rating	Unit
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		± 20	
I_{DS}	Drain-Source Current	T_C = 25 ℃, V_{GS} = 10 V	120	A
		T_C = 100 ℃, V_{GS} = 10 V	87	
I_{DM}[Note1]	Pulsed Drain-Source Current	T_C = 25 ℃, V_{GS} = 10 V	290	A
I_S	Diode Forward Current	T_C = 25 ℃, V_{GS} = 0 V	120	
E_{AS}	Single Pulsed Avalanche Energy	L = 1.0 mH, V_{DD} = 50 V	722	mJ
P_{tot}	Total Power Dissipation	T_C = 25 ℃	333	W
$R_{\theta JA}$[Note2]	Thermal Resistance- Junction to Ambient		57	℃ / W
$R_{\theta JC}$	Thermal Resistance- Junction to Case		0.45	
T_{stg}	Storage Temperature		- 55 ~ 175	℃
T_J	Junction Temperature		175	

© 2026 inergy Technology Inc. All rights reserved.

5. Electrical Characteristics (T_A = 25 °C Unless Otherwise Noted)

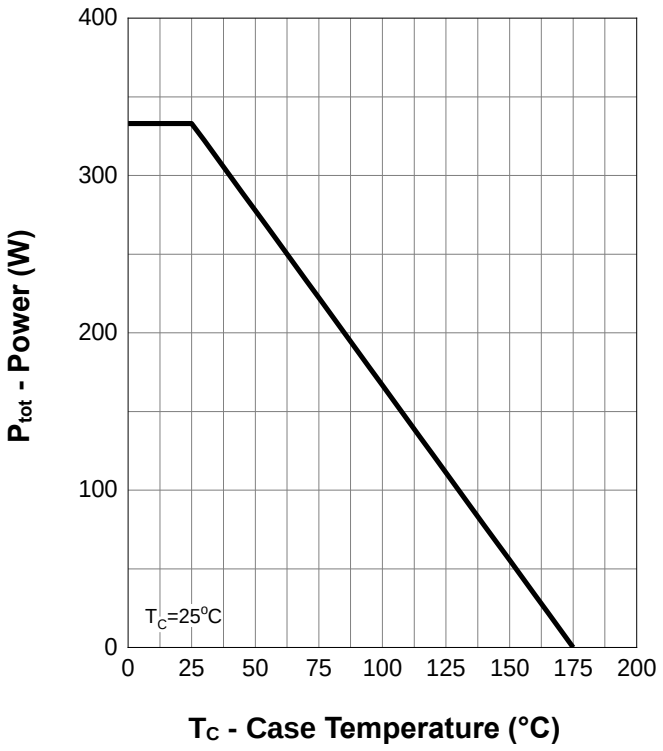
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 μA	100	-	-	V
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 μA	2	-	4	
I_{DSS}	Drain-Source Leakage Current	V_{DS} = 80 V, V_{GS} = 0 V	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS} = 0 V, V_{GS} = ± 20 V	-	-	±100	nA
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS} = 10 V, I_{DS} = 30 A	-	6.3	7.9	mΩ
		V_{GS} = 6 V, I_{DS} = 20 A	-	7.0	9.5	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = 30 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}[Note3]	Reverse Recovery Time	I_{DS} = 30 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs	-	46	-	nS
Q_{rr}[Note3]	Reverse Recovery Charge		-	113	-	nC
Dynamic Characteristics[Note3]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 50 V Freq. = 1 MHz	-	13801	-	pF
C_{oss}	Output Capacitance		-	286	-	
C_{rss}	Reverse Transfer Capacitance		-	37	-	
$R_{g(int)}$	Internal Gate Resistance	V_{GS} = 0 V, V_{DS} = 0 V, Freq. = 1 MHz	-	1.35	-	Ω
t_d(on)	Turn-on Delay Time	V_{DS} = 50 V, V_{GEN} = 10 V, R_G = 3.9 Ω, R_L = 1.6 Ω, I_{DS} = 30 A	-	36	-	nS
t_r	Turn-on Rise Time		-	50	-	
t_d(off)	Turn-off Delay Time		-	125	-	
t_f	Turn-off Fall Time		-	43	-	
Gate Charge Characteristics[Note3]						
Q_g	Total Gate Charge	V_{DS} = 50 V, V_{GS} = 10 V, I_{DS} = 30 A	-	215	-	nC
Q_{gs}	Gate-Source Charge		-	76	-	
Q_{gd}	Gate-Drain Charge		-	33	-	

Note 1：Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
Note 2：Surface Mounted on 1 in^2 pad area, t ≤ 10 sec.
Note 3：Guaranteed by design, not subject to production testing.

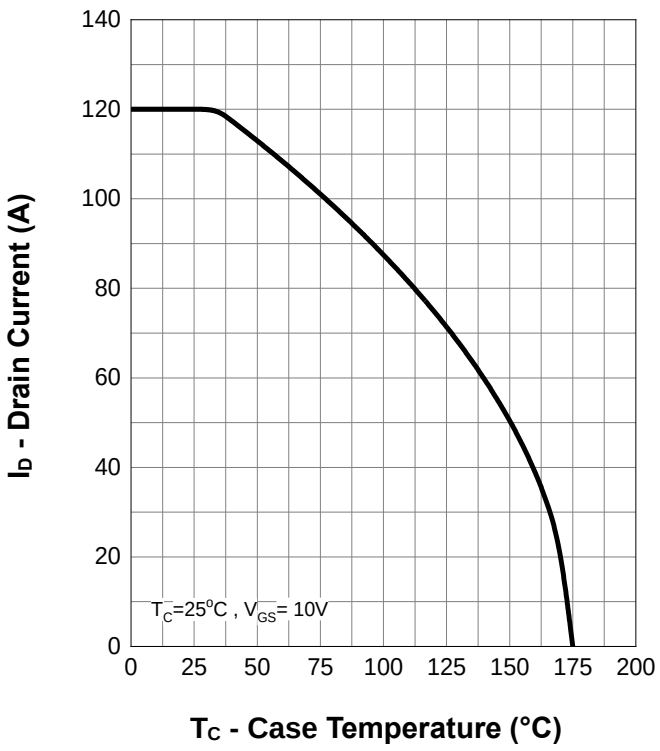
© 2026 inergy Technology Inc. All rights reserved.

6. Typical Characteristics

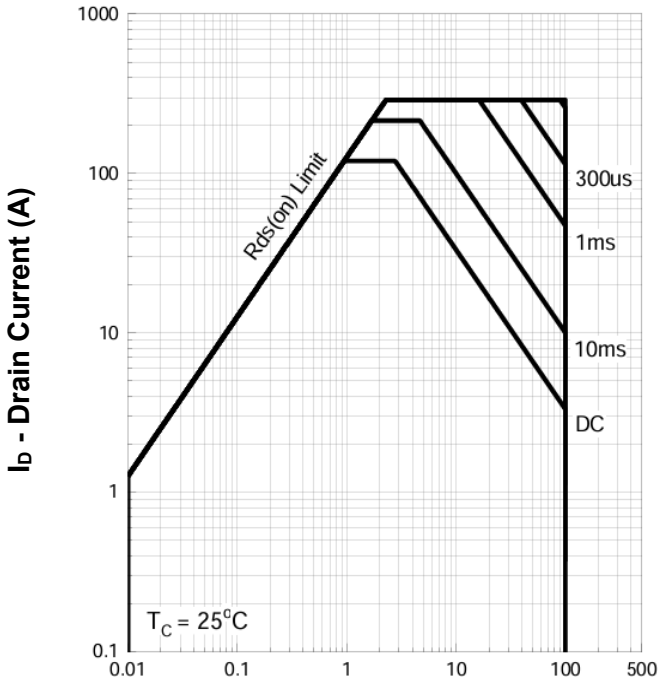
Power Capability



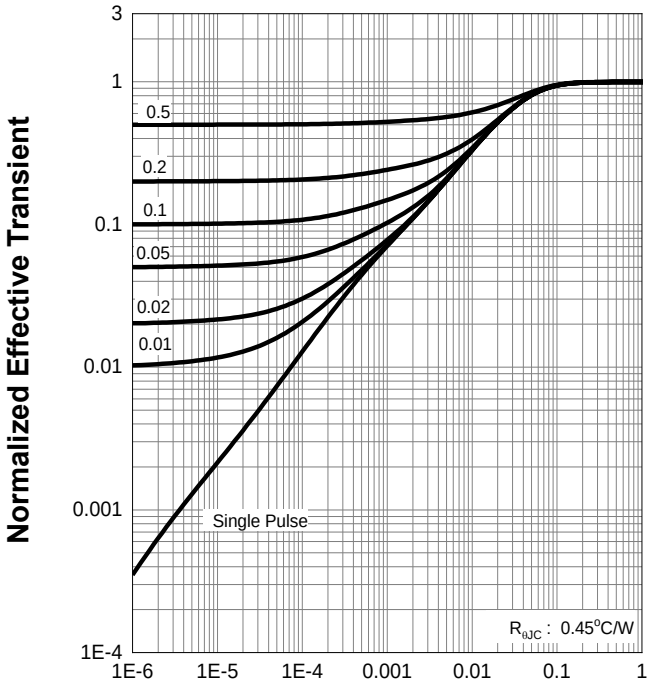
Current Capability



Safe Operating Area



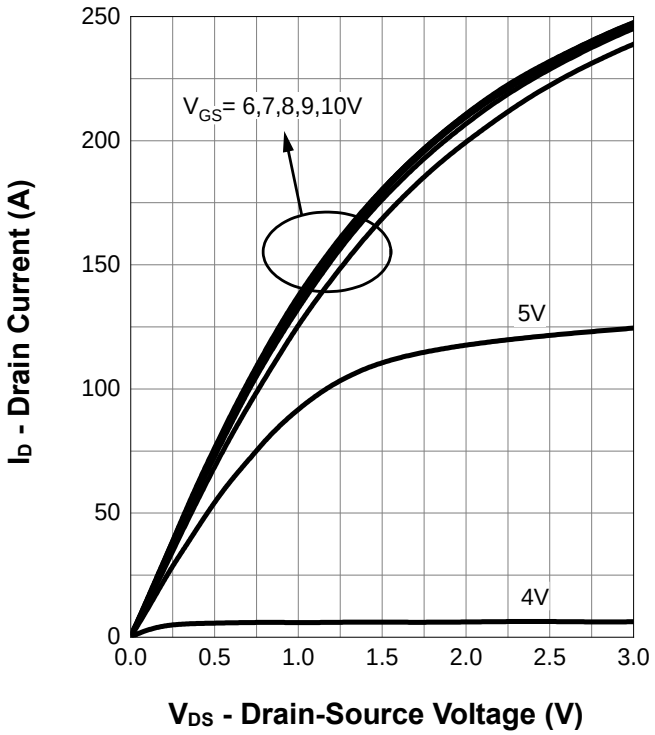
Transient Thermal Impedance



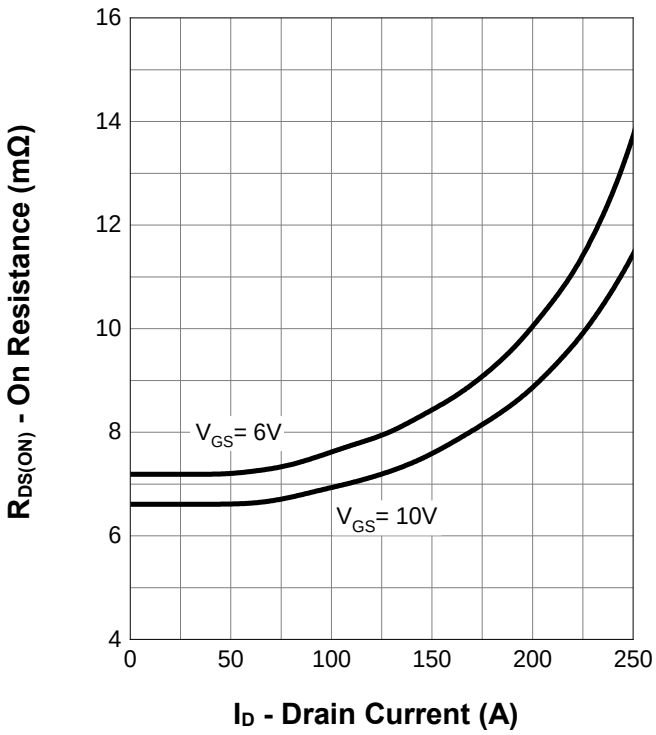
© 2026 inergy Technology Inc. All rights reserved.

6. Typical Characteristics (cont.)

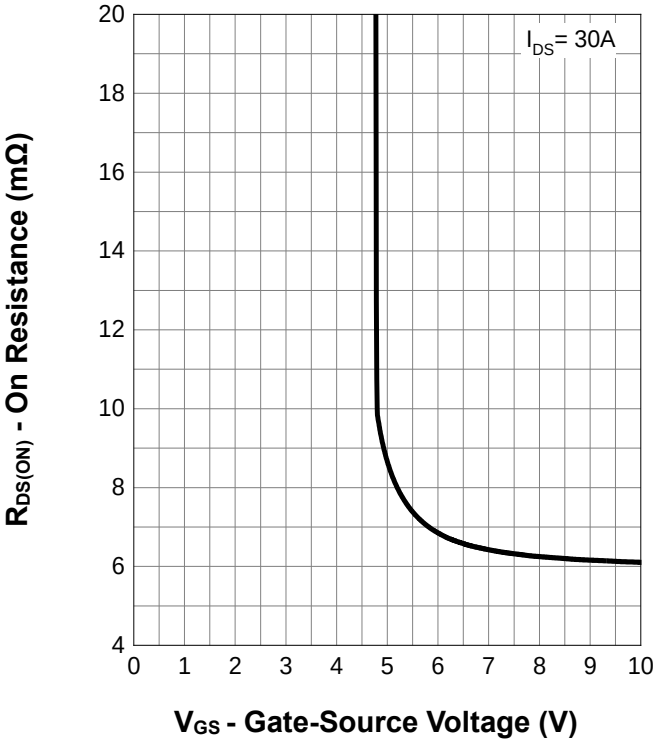
Output Characteristics



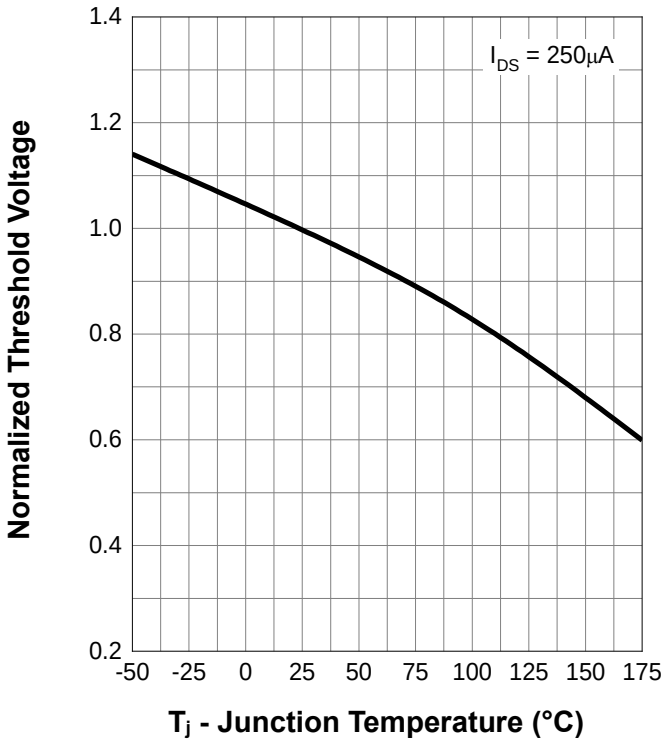
On Resistance



Transfer Characteristics



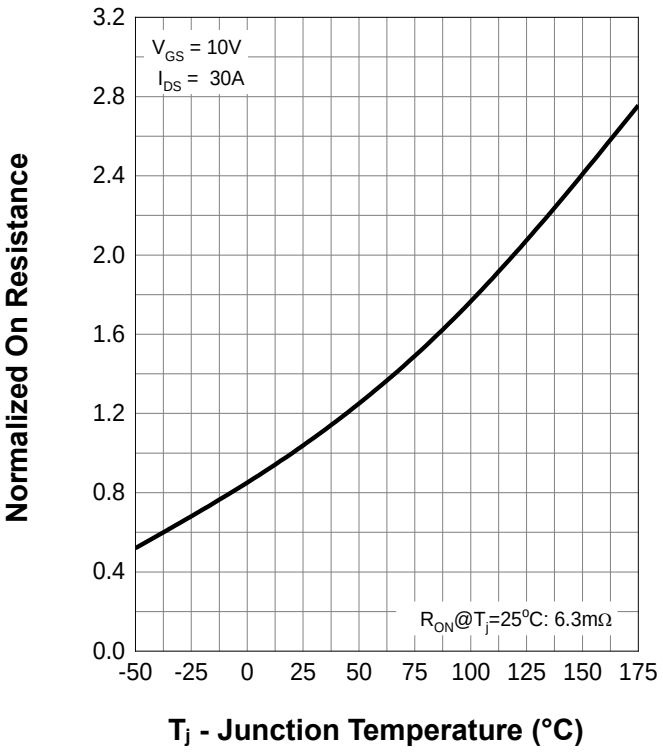
Normalized Threshold Voltage



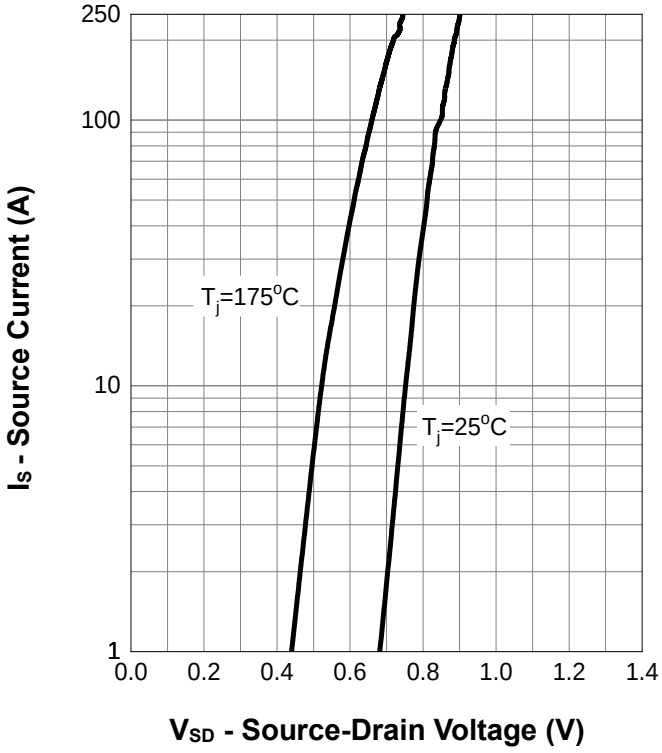
© 2026 inergy Technology Inc. All rights reserved.

6. Typical Characteristics (cont.)

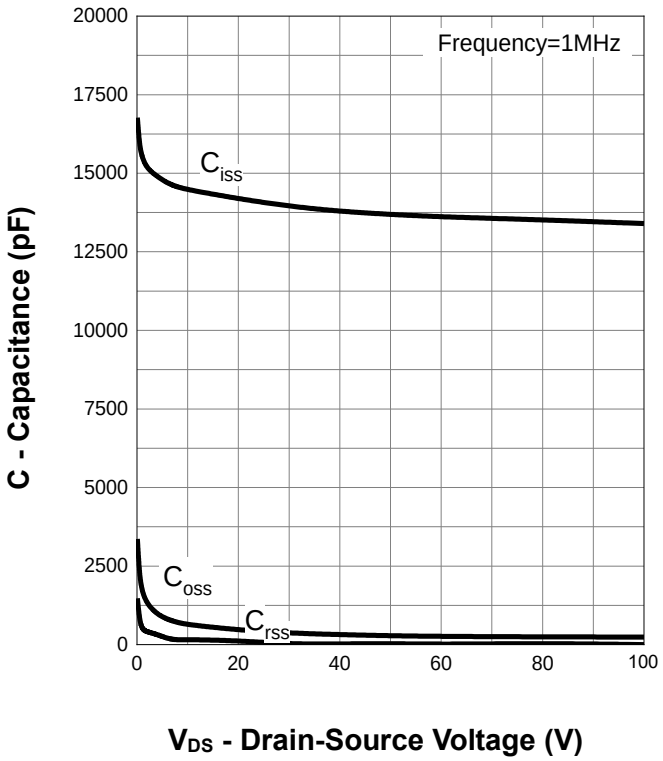
Normalized On Resistance



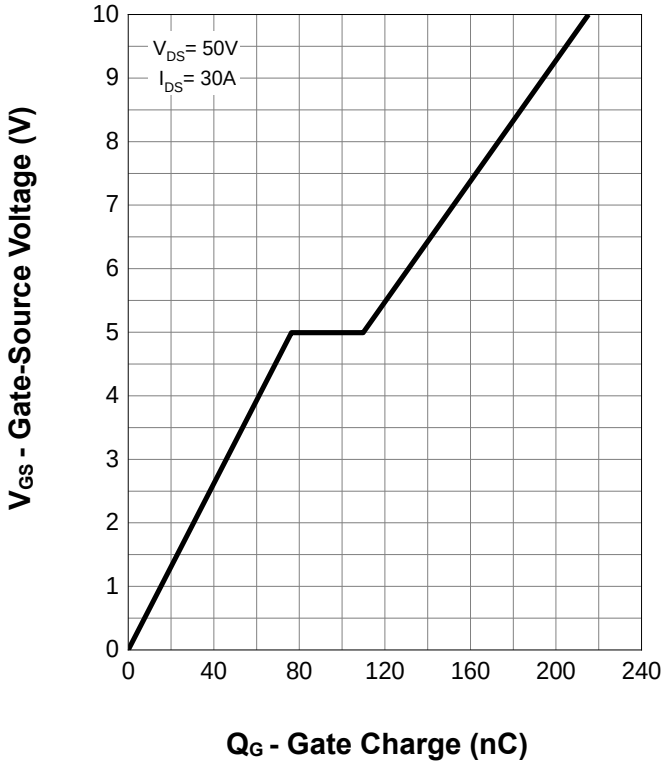
Diode Forward Current



Capacitance



Gate Charge



© 2026 inergy Technology Inc. All rights reserved.

Important Notice

1. inergy Technology Inc. reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

2. The Products of inergy Technology Inc. have been tested, verified and passed by our specifications and standards, and are 100% inspected before delivery from the factory. It is strongly recommended that the customers shall perform verifications of the functionality, compatibility, and reliability of the environment or platform that you used. inergy Technology Inc. would not be liable for or guarantee anything that is related to the functionality, compatibility, and reliability of the environment or platform used by the customers.

© 2026 inergy Technology Inc. All rights reserved.