



iM1625

N-Channel Enhancement Mode MOSFET

Datasheet

1. Product Information

1.1 Features

- Dual N-channel MOSFET
- Advanced Trench Cell Design
- Surface-mounted Package
- RoHS Compliant and Halogen Free



1.2 Package Type

PDFN3.3X3.3A-EP2-8L

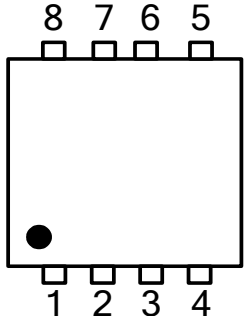
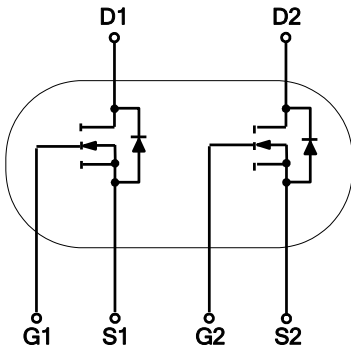
1.3 Quick Reference

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Limiting Values						
P _{tot}	Total Power Dissipation	T _C = 25 °C	-	-	20	W
I _{DS}	Drain-Source Current	T _C = 25 °C, V _{GS} = 10 V	-	-	33	A
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 µA	30	-	-	V
V _{GS(th)}	Gate-Source Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 µA	1.0	-	2.0	
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} = 10 V, I _{DS} = 10 A	-	10	12	mΩ
		V _{GS} = 4.5 V, I _{DS} = 5 A	-	15	20	

2. Ordering Code & Marking Information

Ordering Code	Marking Information
iM1625	iM1625 XXXXX X: Date Code

3. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Source (S1)		
2	Gate (G1)		
3	Source (S2)		
4	Gate (G2)		
5,6	Drain(D2)		
7,8	Drain(D1)		

4. Limiting Values

Symbol	Parameter		Rating	Unit
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		± 20	
I_{DS}	Drain-Source Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	33	A
I_{DM} ^{Note1}	Pulsed Drain-Source Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	96	A
I_S	Diode Forward Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 0\text{ V}$	33	
P_{tot}	Total Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	20	W
$R_{\theta JA}$ ^{Note2}	Thermal Resistance- Junction to Ambient		62.5	$^{\circ}\text{C} / \text{W}$
$R_{\theta JC}$	Thermal Resistance- Junction to Case		6	
T_{stg}	Storage Temperature		- 55 ~ 150	$^{\circ}\text{C}$
T_J	Junction Temperature		150	

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	30	-	-	V
V _{GS(th)}	Gate-Source Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.0	-	2.0	
I _{DSS}	Drain Leakage Current	V _{DS} = 24 V, V _{GS} = 0 V	-	-	1	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _C = 85 °C	-	-	30	μA
I _{GSS}	Gate 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} = 10 A	-	10	12	mΩ
		V _{GS} = 4.5 V, I _{DS} = 5 A	-	15	20	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} = 10 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr} ^{Note3}	Reverse Recovery Time	I _{SD} = 10 A, V _{GS} = 0 V di _{SD} /dt = 100 A/μs	-	8.3	-	nS
Q _{rr} ^{Note3}	Reverse Recovery Charge		-	3.1	-	nC
Dynamic Characteristics ^{Note3}						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 15 V Frequency = 1 MHz	-	1106	-	pF
C _{oss}	Output Capacitance		-	113	-	
C _{rss}	Reverse Transfer Capacitance		-	97	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 15 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 1.5 Ω, I _{DS} = 10 A	-	6.2	-	nS
t _r	Turn-on Rise Time		-	29	-	
t _{d(off)}	Turn-off Delay Time		-	16	-	
t _f	Turn-off Fall Time		-	18	-	
Gate Charge Characteristics ^{Note3}						
Q _g	Total Gate Charge	V _{DS} = 15 V, V _{GS} = 10 V, I _{DS} = 10 A	-	20.6	-	nC
Q _{gs}	Gate-Source Charge		-	4.4	-	
Q _{gd}	Gate-Drain Charge		-	3.2	-	

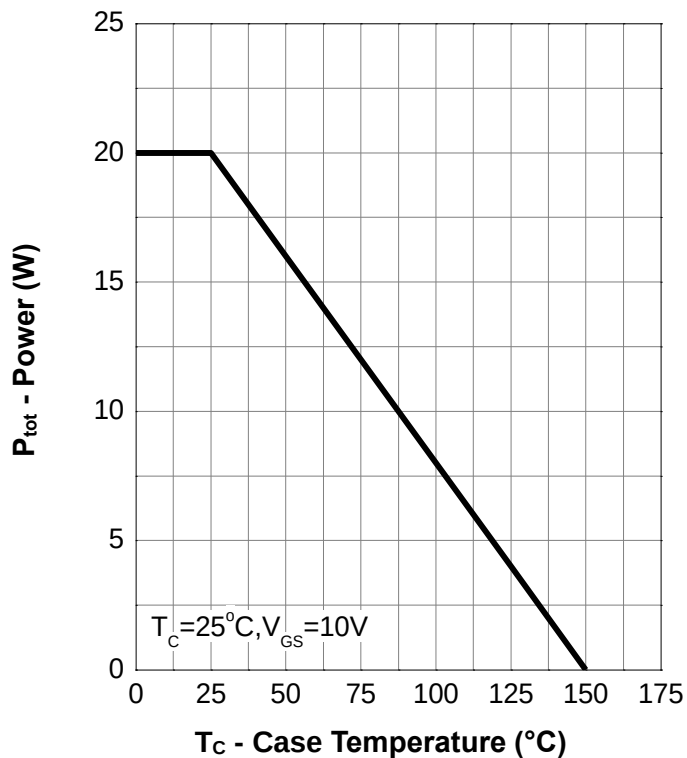
Note 1 : Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

Note 2 : Surface Mounted on 1 in² pad area, t ≤ 10 sec.

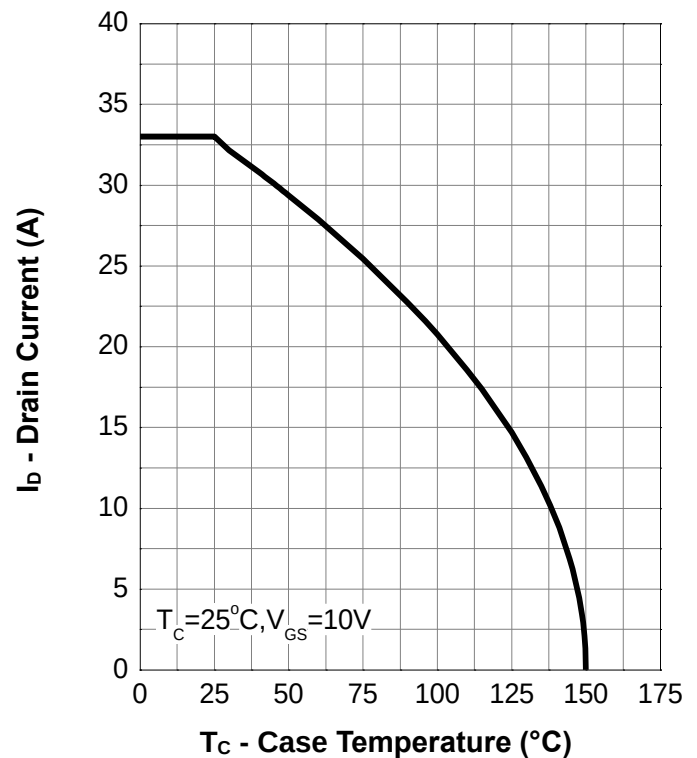
Note 3 : Guaranteed by design, not subject to production testing.

6. Electrical Characteristics

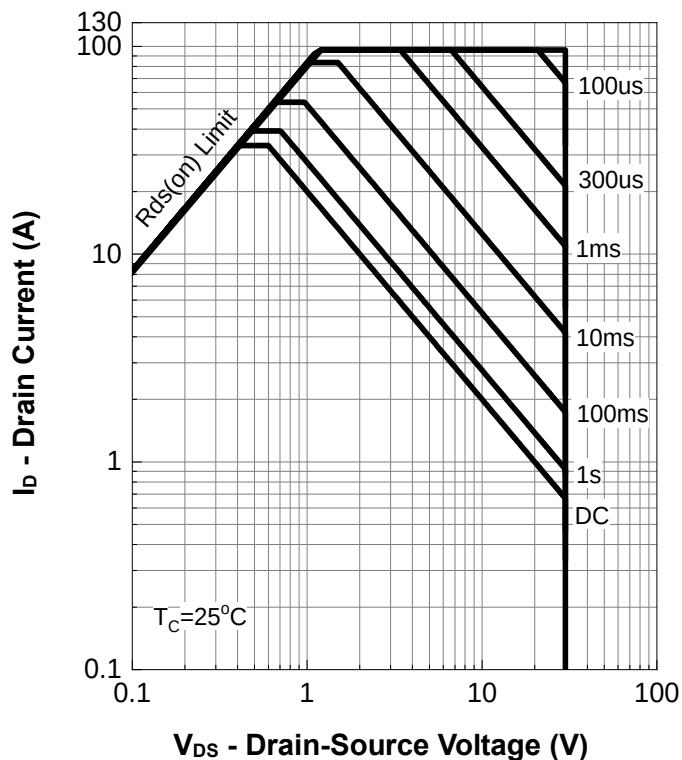
Power Capability



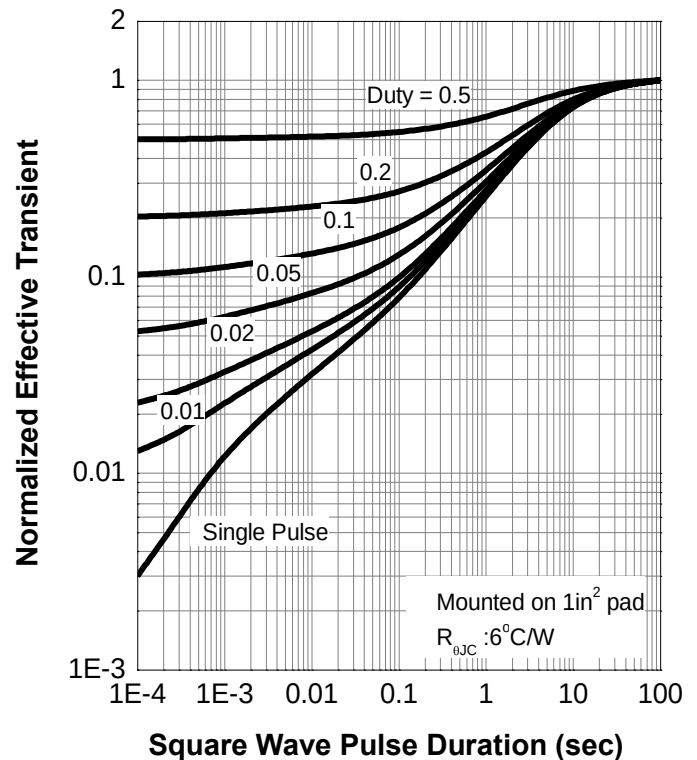
Current Capability



Safe Operating Area

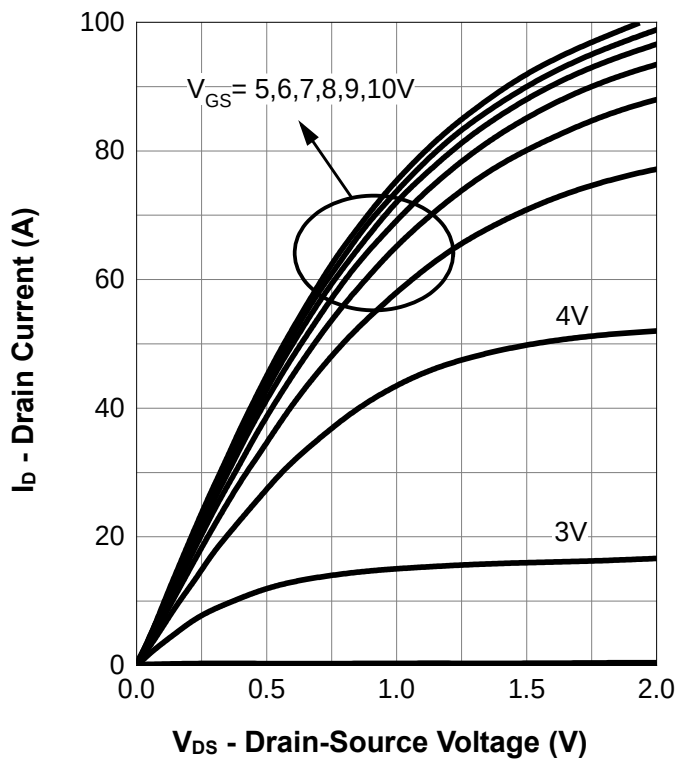


Transient Thermal Impedance

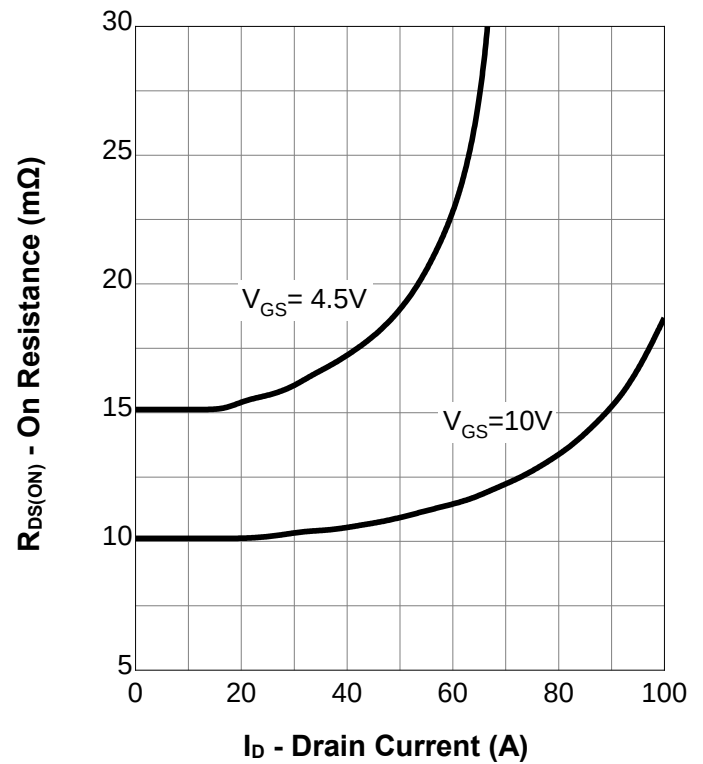


6. Electrical Characteristics (cont.)

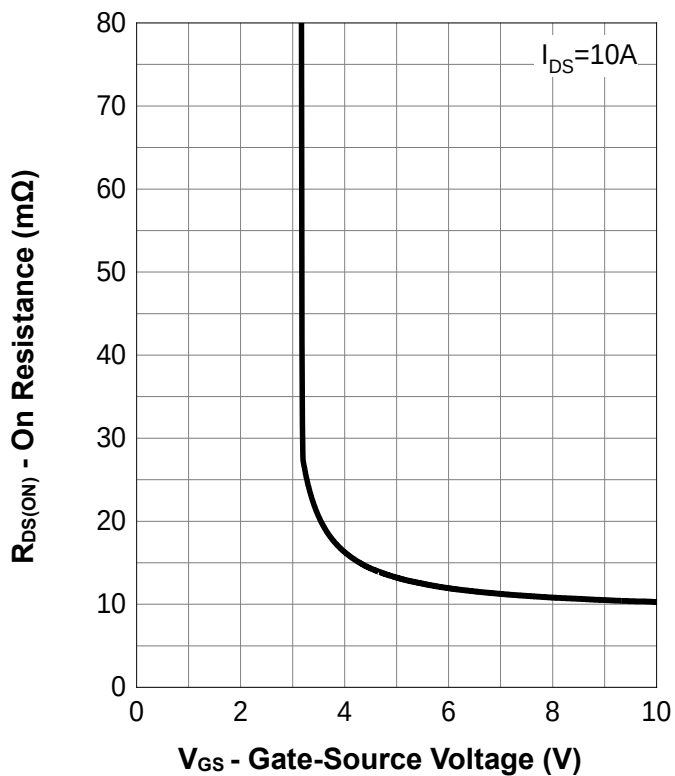
Output Characteristics



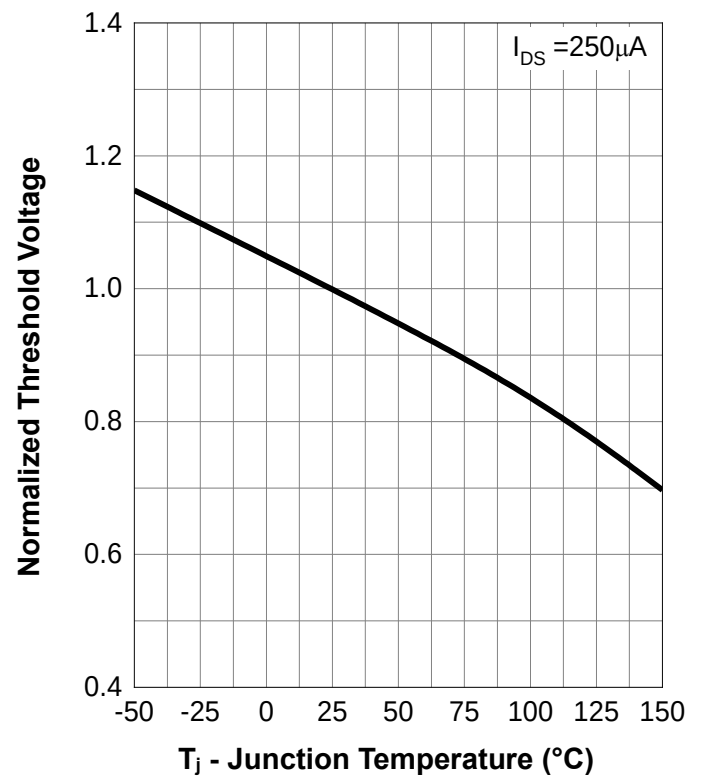
On Resistance



Transfer Characteristics

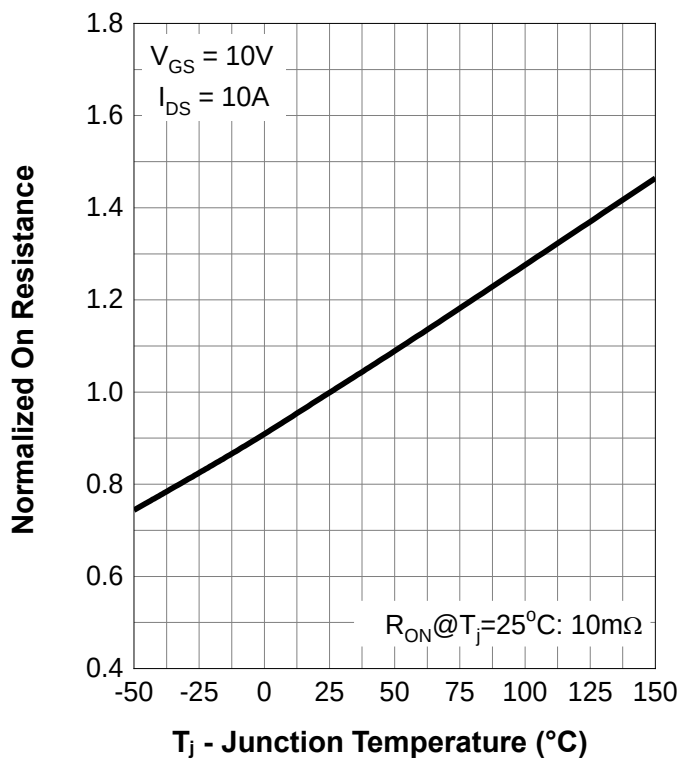


Normalized Threshold Voltage

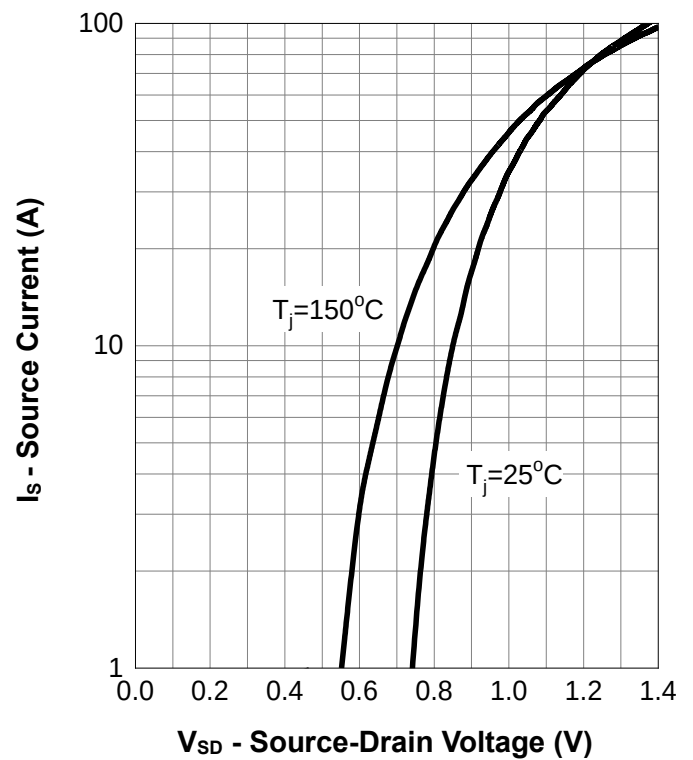


6. Typical Characteristics (cont.)

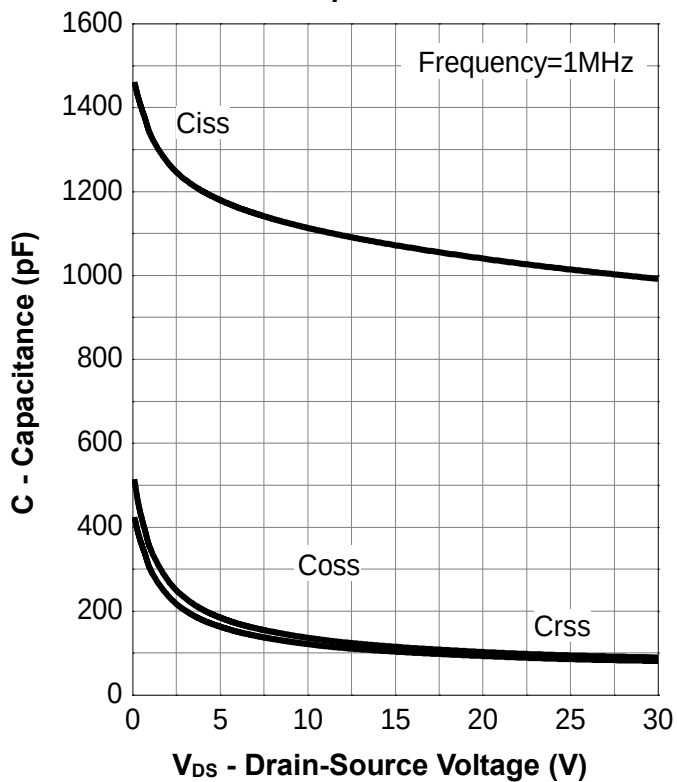
Normalized On Resistance



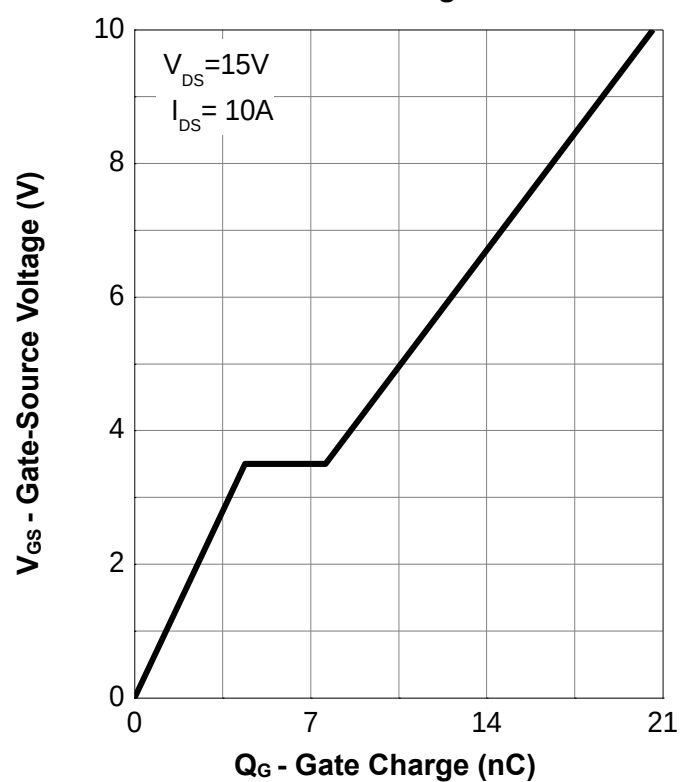
Diode Forward Current



Capacitance



Gate Charge



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