

iM1629



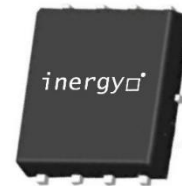
Dual N-Channel Enhancement Mode MOSFET

Datasheet

1. Product Information

1.1 Features

- Surface-mounted Package
- Advanced Trench Cell Design
- RoHS Compliant and Halogen Free
- Reliable and Rugged



1.2 Package Type

PDFN5X6A-EP2-8L / PDFN5x6C-EP2-8L

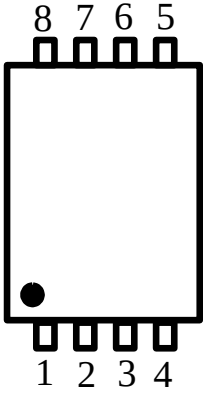
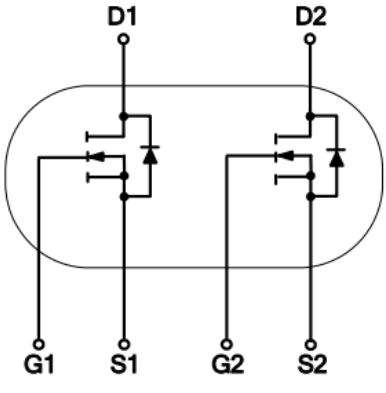
1.3 Quick Reference

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Limiting Values						
P_{tot}	Total Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	-	-	35	W
I_D	Drain Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	-	31	A
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown	$V_{GS} = 0\text{ V}, I_{DS} = 250\text{ }\mu\text{A}$	100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\text{ }\mu\text{A}$	1.5	-	3	V
$R_{DS(ON)}$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 20\text{ A}$	-	15	18	m Ω
		$V_{GS} = 4.5\text{ V}, I_{DS} = 10\text{ A}$	-	22	28	

2. Ordering Code & Marking Information

Ordering Code	Marking Information
iM1629	iM1629 XXXXX X: Data 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		100	V
V_{GS}	Gate-Source Voltage		± 20	V
I_D	Drain Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V},$	31	A
		$T_C = 100\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V},$	19.8	A
I_{DM} Note1	Pulsed Source Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V},$	80	A
I_S	Diode Forward Current	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 0\text{ V},$	31	A
P_{tot}	Total Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	35	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		3.5	$^{\circ}\text{C} / \text{W}$
T_{stg}	Storage Temperature		-55~150	$^{\circ}\text{C}$
T_J	Junction Temperature		150	$^{\circ}\text{C}$

5. Electrical Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown	V _{GS} = 0 V, I _{DS} = 250 μA	100	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.5	-	3	V
I _{DSS}	Drain Leakage Current	V _{DS} = 80 V, V _{GS} = 0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{DS} = 0 V, V _{GS} = ± 20 V	-	-	± 100	nA
R _{DS(ON)}	On-State Resistance	V _{GS} = 10 V, I _{DS} = 20 A	-	15	18	mΩ
		V _{GS} = 4.5 V, I _{DS} = 10 A	-	22	28	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} = 20 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr} Note3	Reverse Recovery Time	I _{DS} = 20 A, V _{GS} = 0 V dI _{SD} /dt = 100 A/μs	-	51	-	nS
Q _{rr} Note3	Reverse Recovery Charge		-	52	-	nC
Dynamic Characteristics Note3						
C _{iSS}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 50 V Frequency = 1 MHz	-	1065	-	pF
C _{oSS}	Output Capacitance		-	177	-	
C _{rSS}	Reverse Transfer Capacitance		-	23	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 50 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 2.5 Ω, I _{DS} = 20 A	-	7	-	nS
t _r	Turn-on Rise Time		-	26	-	
t _{d(off)}	Turn-off Delay Time		-	19	-	
t _f	Turn-off Fall Time		-	21	-	
Gate Charge Characteristics Note3						
Q _g	Total Gate Charge	V _{DS} = 50 V, V _{GS} = 10 V, I _{DS} = 20 A	-	24	-	nC
Q _{gs}	Gate-Source Charge		-	5	-	
Q _{gd}	Gate-Drain Charge		-	6	-	

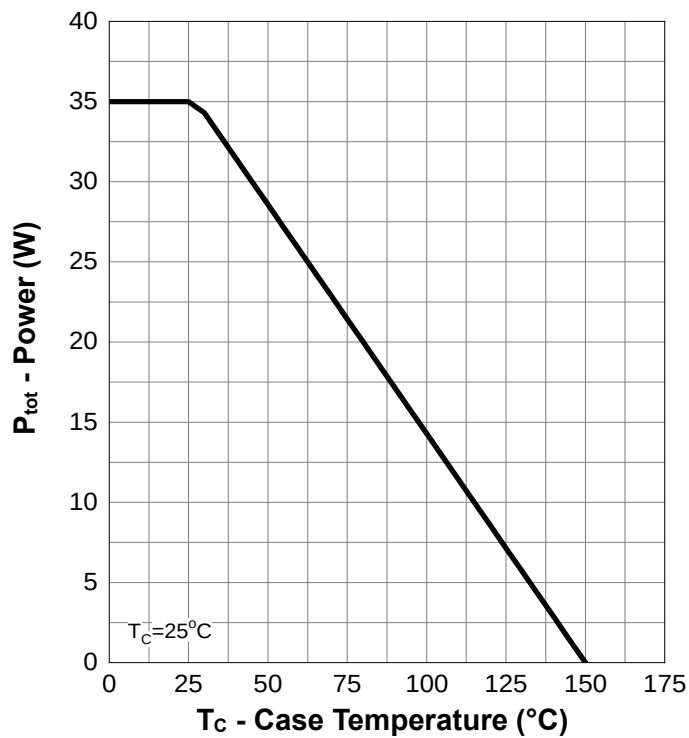
Note 1 : Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

Note 2 : Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$.

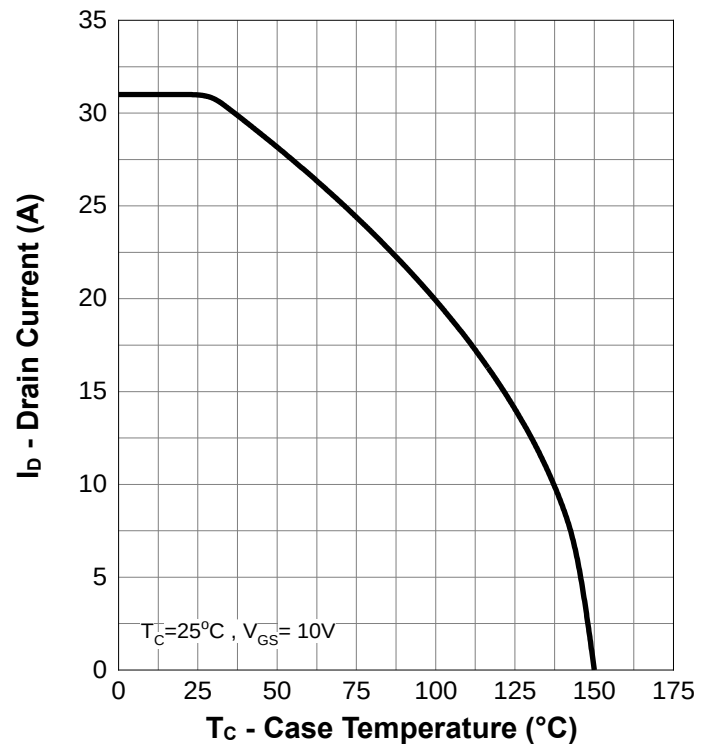
Note 3 : Guaranteed by design, not subject to production testing.

6. Typical Characteristics

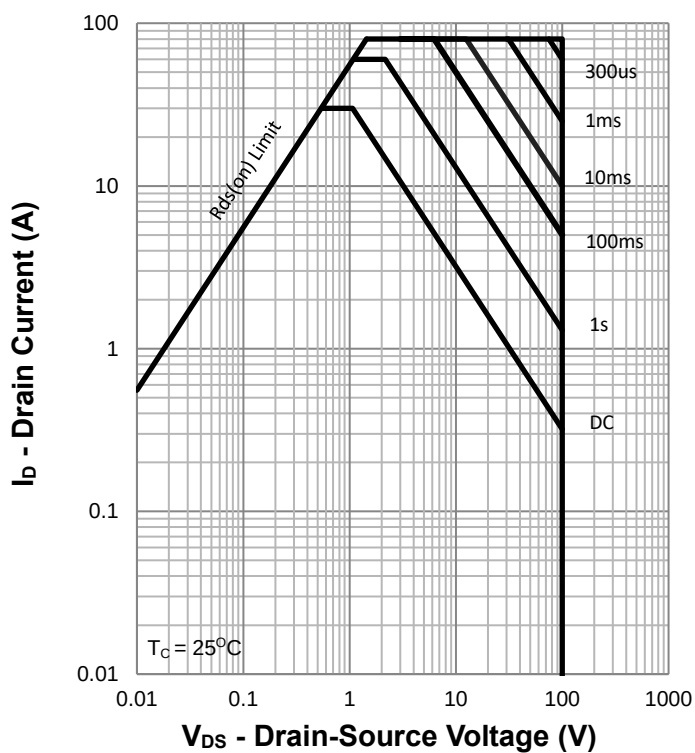
Power Capability



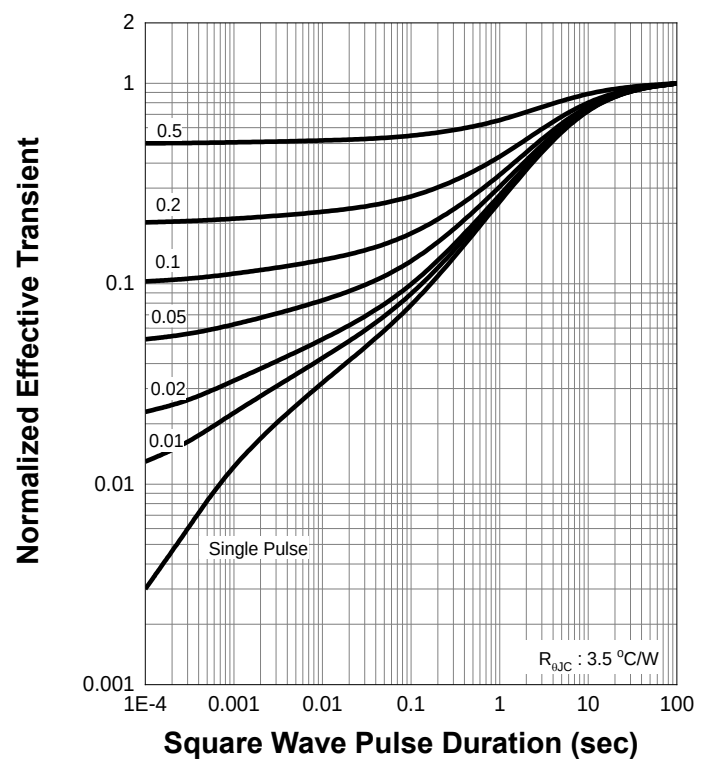
Current Capability



Safe Operating Area

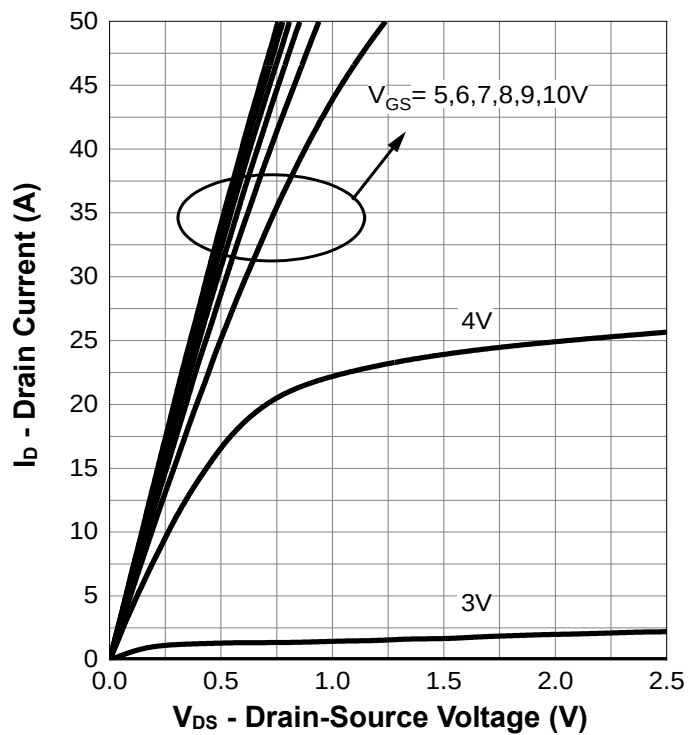


Transient Thermal Impedance

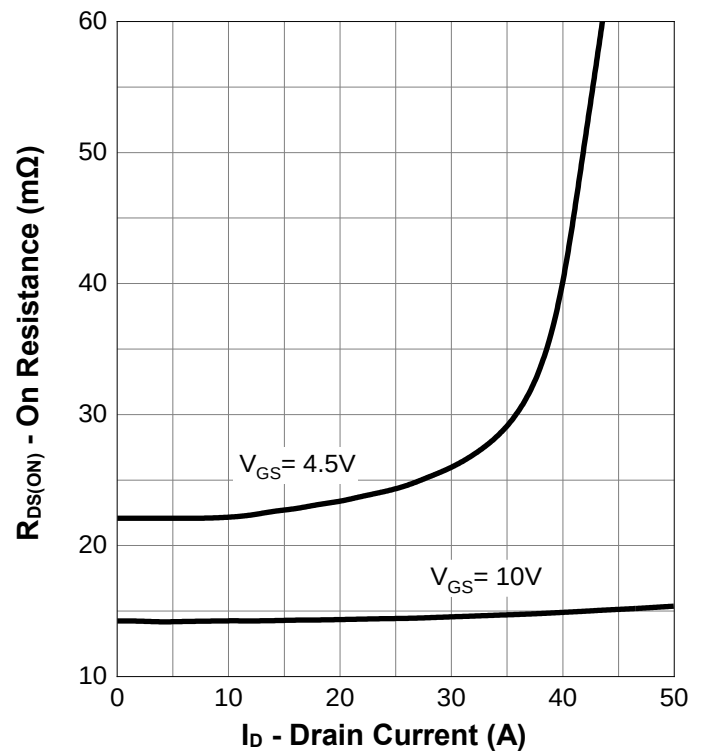


6. Typical Characteristics

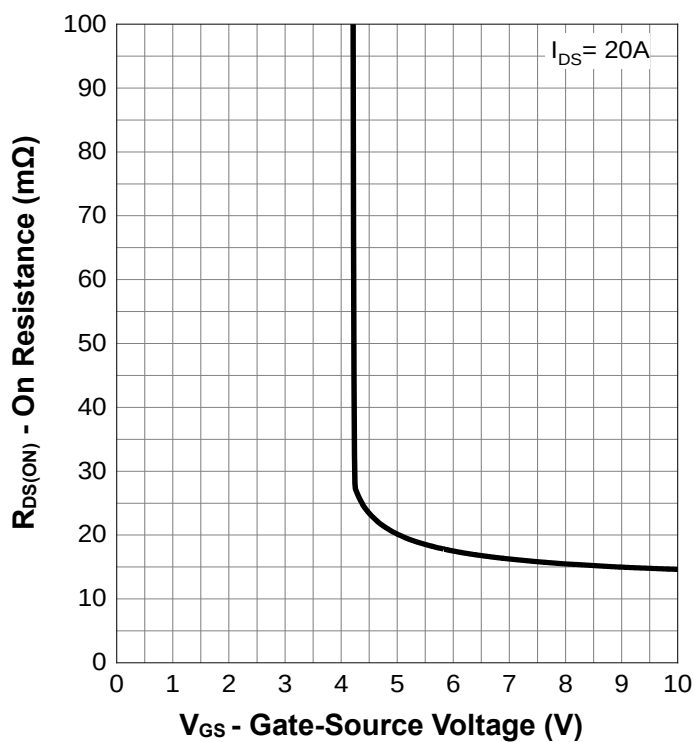
Output Characteristics



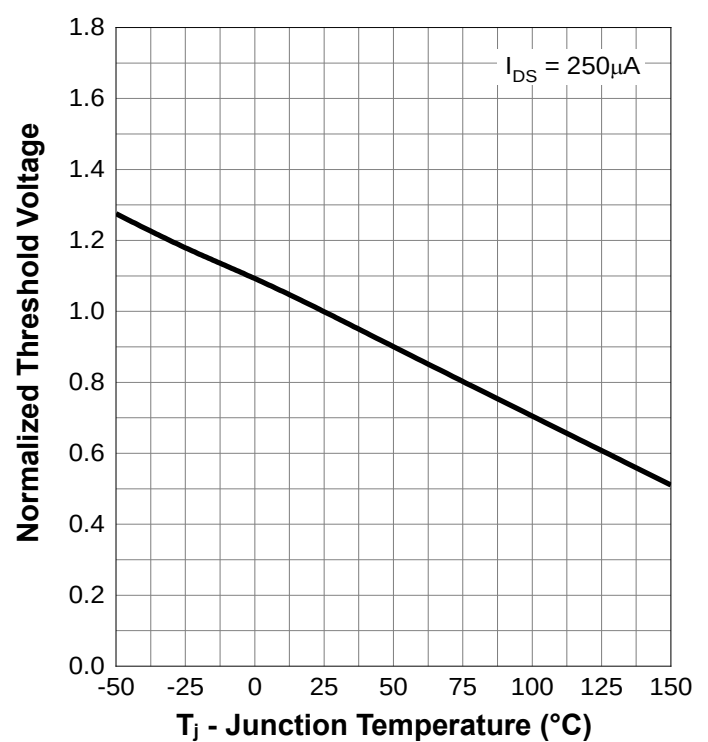
On Resistance



Transfer Characteristics

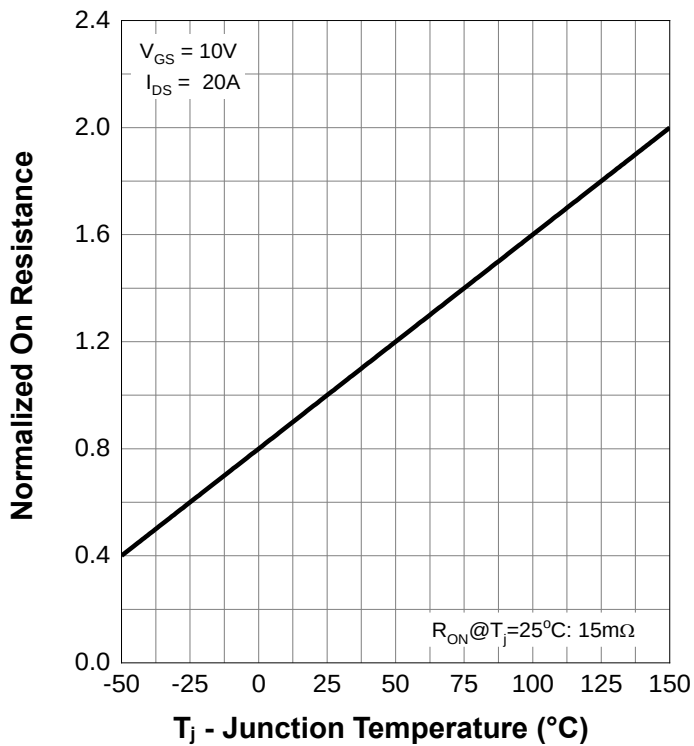


Normalized Threshold Voltage

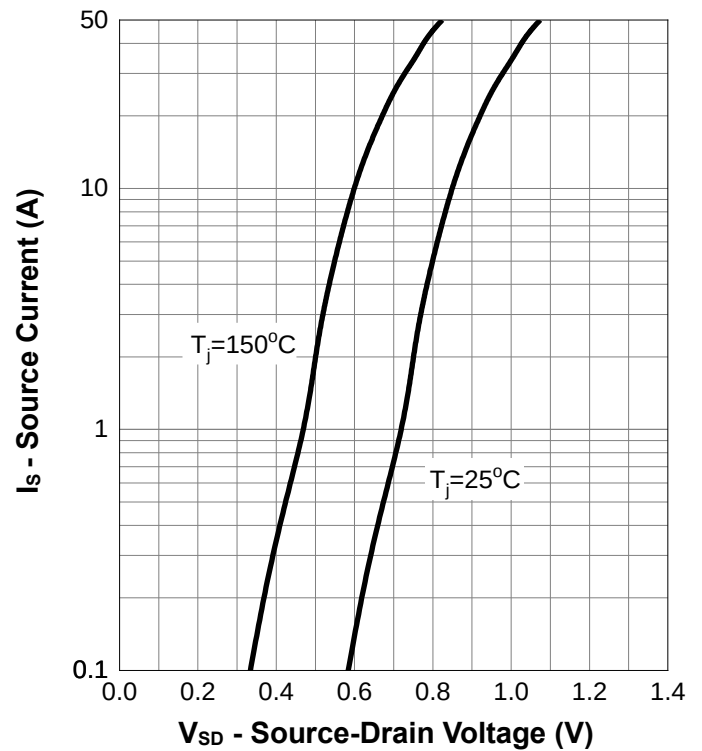


6. Typical Characteristics

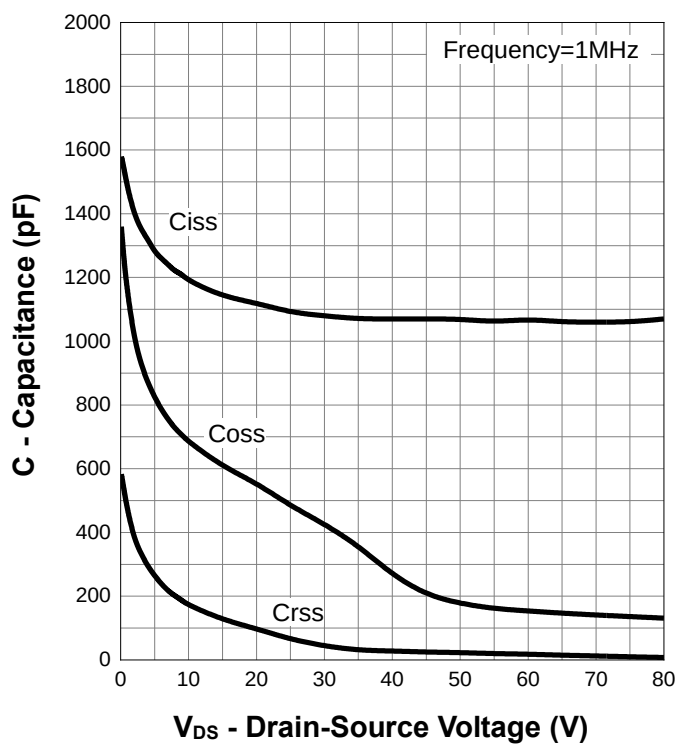
Normalized On Resistance



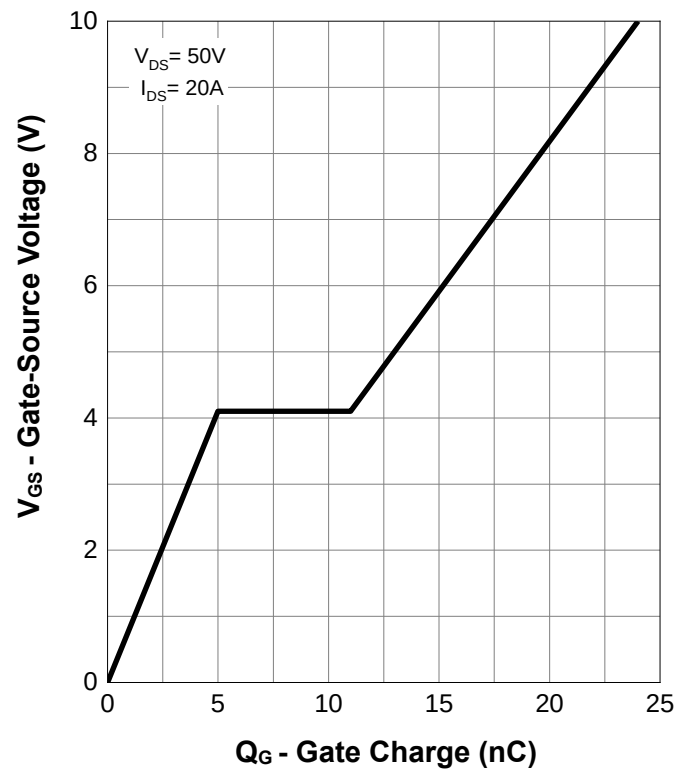
Diode Forward Current



Capacitance



Gate Charge



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