SEMICONDUCTOR
TECHNICAL DATA

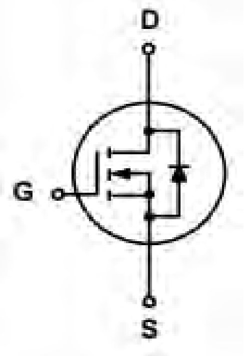
FTK0504DFN33

N-Channel Trench MOSFET
PDFN3.3*3.3-8L

Features

- Surface-mounted package
- Low Thermal Resistance

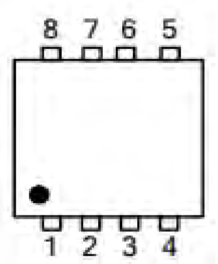
1,2,3	Source
4	Gate
5,6,7,8	Drain



Mechanical Data

- Case:PDFN3.3*3.3-8L Plastic Package
- Weight:Approx.0.021g
- Packaging:5K per 13"reel

Top View
PDFN3.3*3.3-8L



Maximum Ratings & Thermal Characteristics

Tamb=25℃, unless otherwise specified

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	50	A
Pulsed Drain Current (Note1,2,3)	I_{DM}	128	A
Single Pulse Avalanche Energy（Note1）	E_{AS}	91	mJ
Power Dissipation	P_D	20	W
Operating and Storage Temperature Range	T_J,T_{stg}	-55 to +150	℃
Thermal Resistance, Junction to Case (Note1)	$R_{\theta JC}$	6	°C/W
Thermal Resistance, Junction to Ambient (Note1)	$R_{\theta JA}$	62.5	°C/W

Notes:

1. Surface Mounted on 1 in^2 pad area, t⩽10 sec
2. Pulse Test: Pulse width ⩽ 300us, Duty cycle ⩽ 2%
3. Limited by bonding wire

N-Channel Trench MOSFET
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Electrical Characteristics

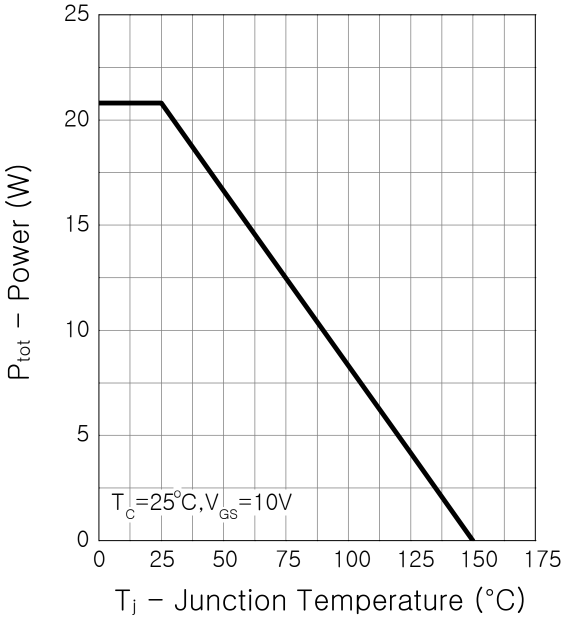
(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	40	-	-	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=32V,V_{GS}=0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V	-	-	±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	-	2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=15A	-	4.5	5.5	mΩ
		V_{GS}=4.5V,I_D=10A	-	6.2	7.5	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V, f=1.0MHz	-	915	-	pF
Output Capacitance	C_{oss}		-	350	-	
Reverse Transfer Capacitance	C_{rss}		-	48	-	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{DS}=20V,I_D=15A, V_{GEN}=10V,R_G=3.9Ω R_L=1.33Ω	-	5.7	-	ns
Rise Time	tr		-	24	-	
Turn-Off Delay Time	td(OFF)		-	24	-	
Fall Time	tf		-	18	-	
Total Gate Charge	Qg	V_{DS}=20V V_{GS}=10V I_{DS}=15A	-	21	-	nC
Gate-Source Charge	Qgs		-	3.7	-	
Gate-Drain Charge	Qgd		-	4.7	-	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_{SD}=15A	-	-	1.3	V
Diode Reverse Recovery Time	Trr	V_{GS}=0V,I_{SD}=15A, dIF/dt=100A/μs	-	22	-	ns
Diode Reverse Recovery Charge	Qrr		-	7.2	-	μC

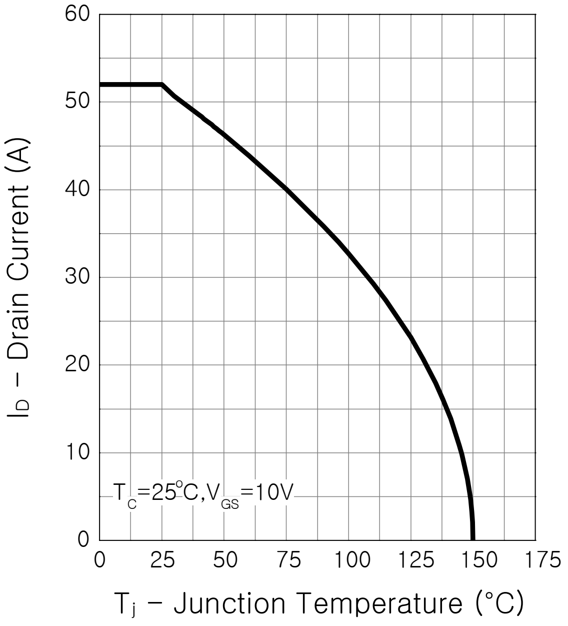
Notes:

1. Pulse Test; Pulse width ≤ 300us, Duty cycle ≤ 2%
2. Guaranteed by design, not subject to production testing

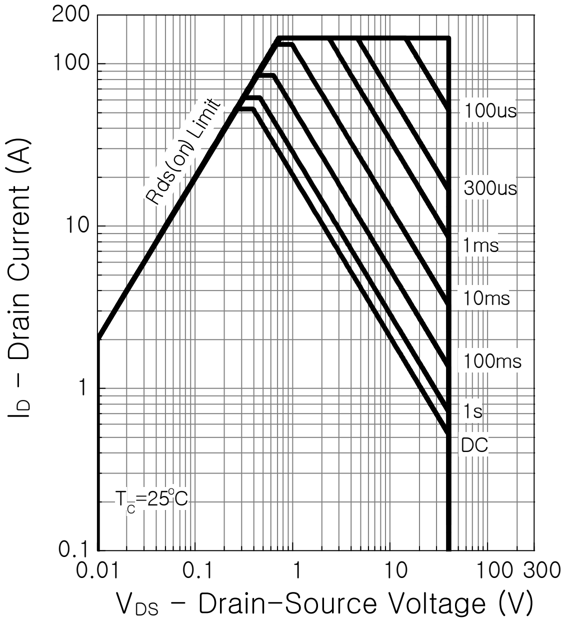
Power Capability



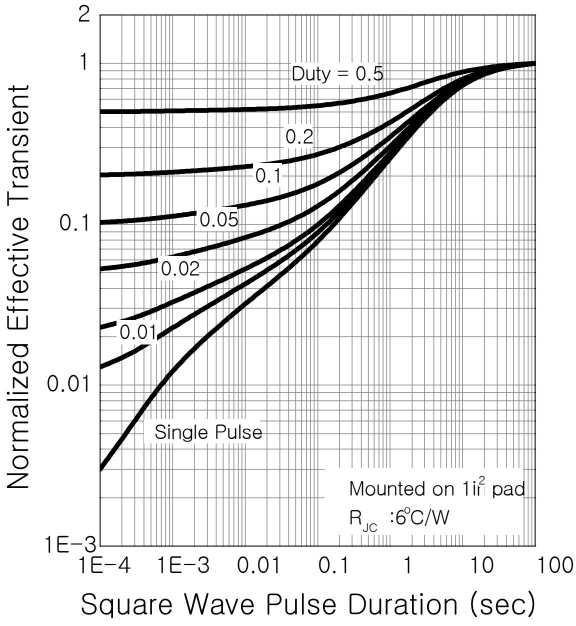
Current Capability



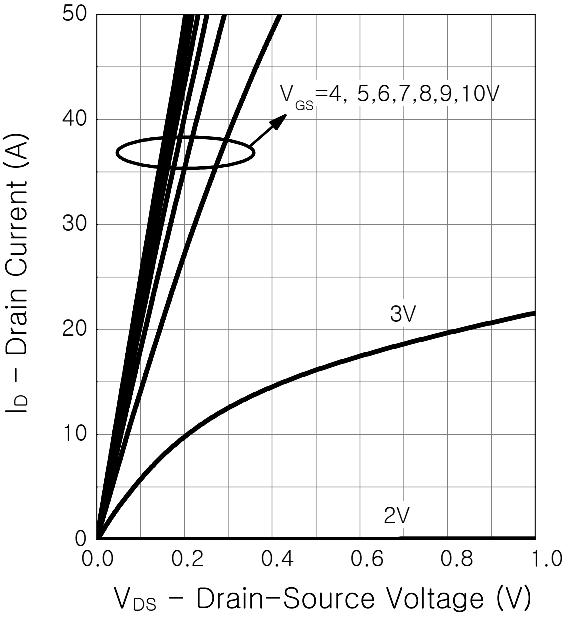
Safe Operation Area



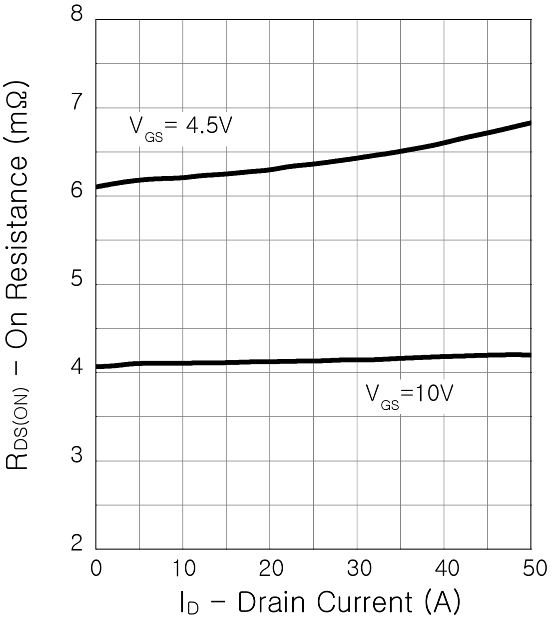
Transient Thermal Impedance



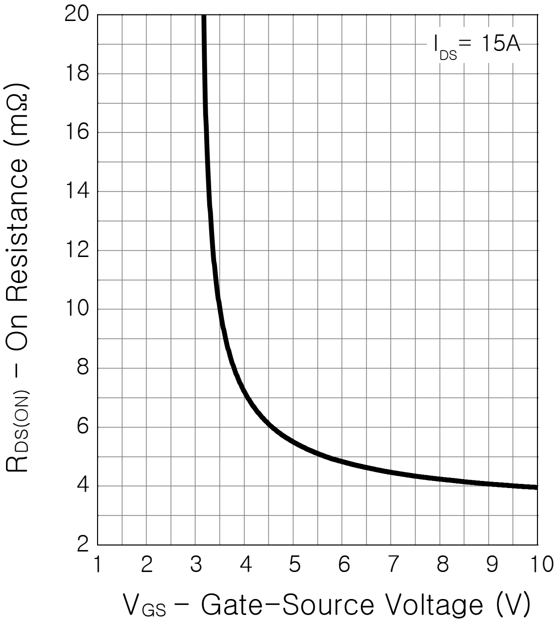
Output Characteristics



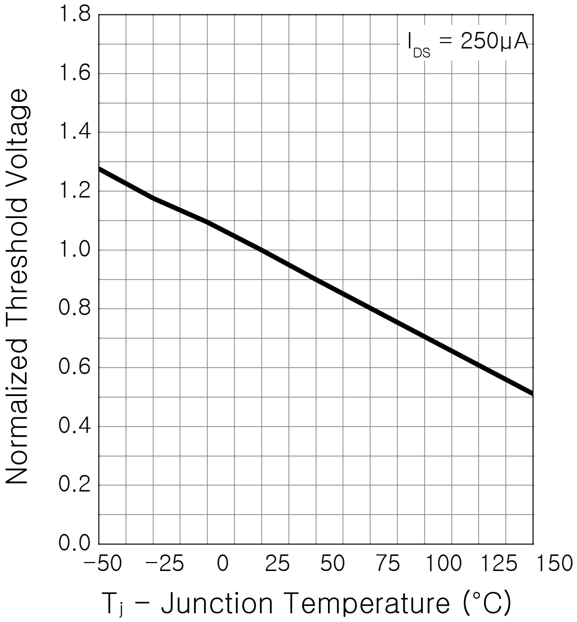
On Resistance



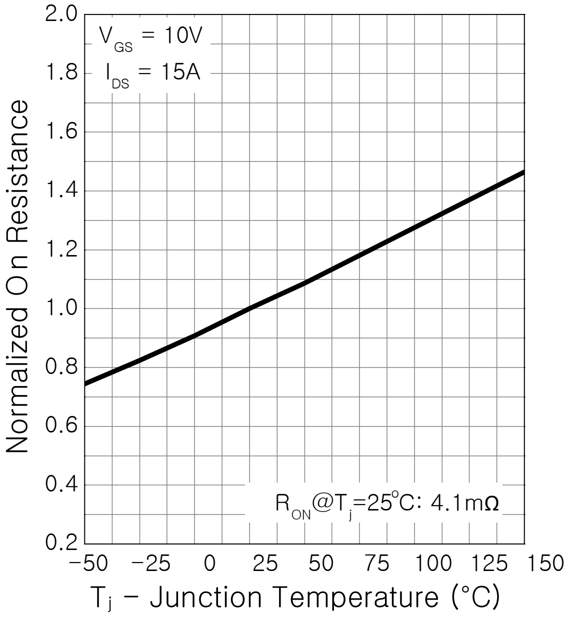
Transfer Characteristics



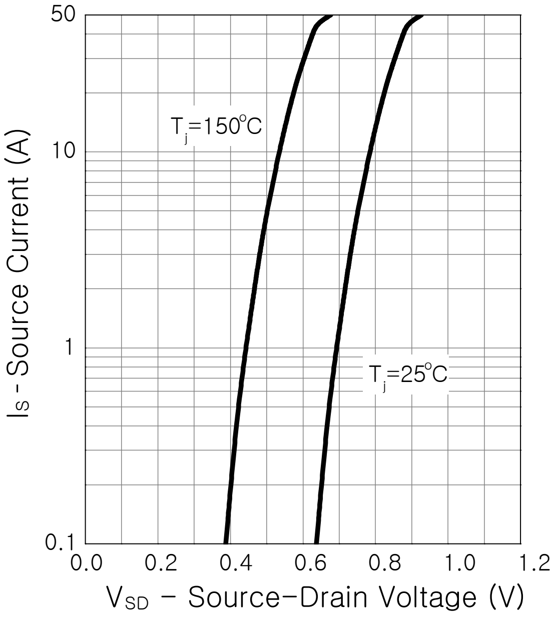
Normalized Threshold Voltage



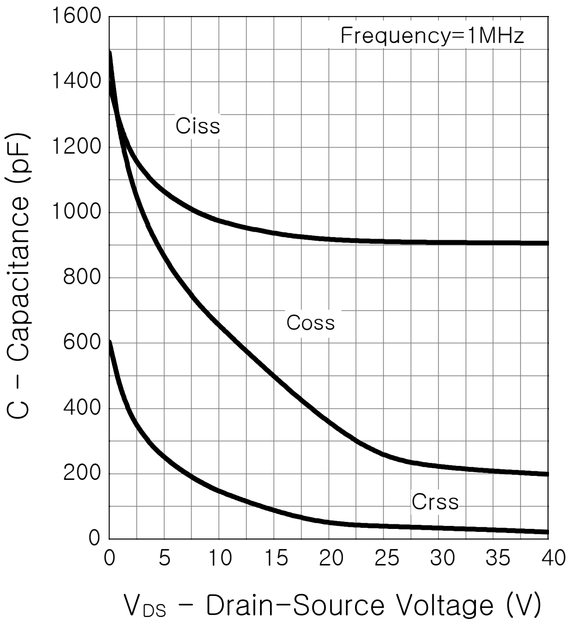
Normalized On Resistance



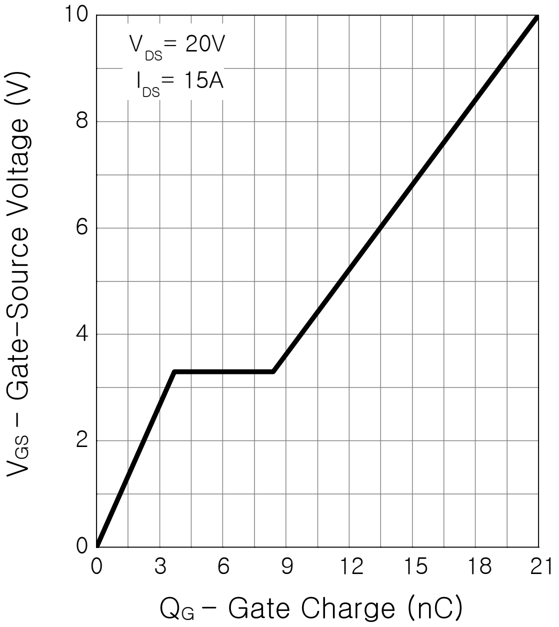
Diode Forward Current

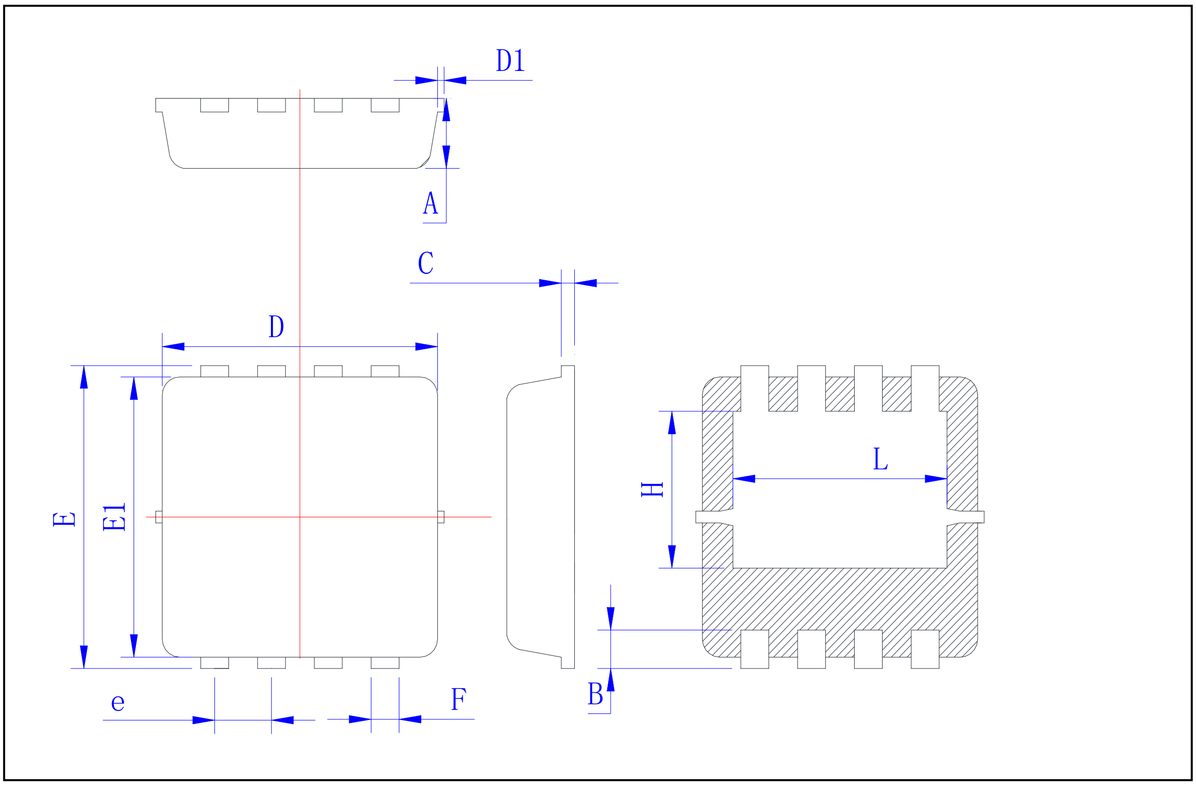


Capacitance



Gate Charge





Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.27	0.32	0.37
H	1.63	1.73	1.83
L	2.35	2.45	2.55