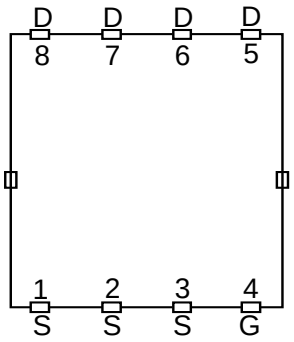
Description

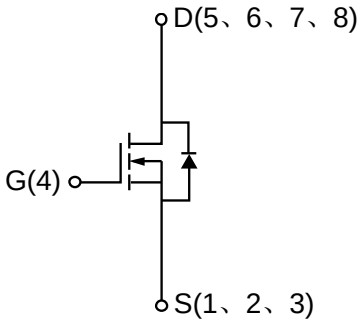
The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
30	＜9.5 @ V_{GS}=4.5V	50
	＜6.6@ V_{GS}=10V	

Top View (PDFN3.3*3.3-8L)



Internal Structure



Absolute maximum ratings @ T_A=25℃ unless otherwise specified

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(V_{GS}=10V)	T_A=25℃	I_D	12	A
	T_A=70℃		9.5	
300μs Pulsed Drain Current(V_{GS}=10V)	T_A=25℃	I_{DM}	40	A
Continuous Drain Current(V_{GS}=10V)	T_C=25℃	I_D	50	A
	T_C=70℃		38	
300μs Pulsed Drain Current(V_{GS}=10V)	T_C=25℃	I_{DM}	165	A
Diode Continuous Forward Current		I_S	2	A
Avalanche Current, Single pulse (L=0.1mH)		I_{AS}	25	A
Avalanche Energy, Single pulse (L=0.1mH)		E_{AS}	31.25	mJ
Maximum Power Dissipation	T_A=25℃	P_D	1.6	W
	T_A=70℃		1	
Maximum Power Dissipation	T_C=25℃	P_D	29	W
	T_C=70℃		19	
Maximum Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t≤10s	$R_{\theta JA}$	35	℃/W
	Steady State		60	
Thermal Resistance-Junction to Case	Steady State	$R_{\theta JC}$	3.5	℃/W

Electrical characteristics per line @25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_{DS}=250 μA, V_{GS}=0V	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
		T_J=85℃	-	-	30	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250 μA	1.5	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_{DS}=12A	-	5.5	6.6	mΩ
		V_{GS}=4.5V, I_{DS}=9A	-	7.3	9.5	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_{SD}=2A	-	0.8	1.1	V
Total Gate Charge	Qg	V_{GS}=10V, V_{DS}=15V, I_D=12A	-	28.3	39.6	nC
Total Gate Charge	Qg	V_{GS}=4.5V, V_{DS}=15V, I_{DS}=12A	-	12.9	18	nC
Gate-Source Charge	Qgs		-	4.22	5.9	
Gate-Drain Charge	Qgd		-	7.3	10.2	
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS}=15V, f=1MHz	1360	1700	2040	pF
Output Capacitance	C_{OSS}		185	265	345	
Reverse Transfer Capacitance	C_{RSS}		99	165	231	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V, V_{GEN}=10V, R_G=6Ω, R_L=15Ω, I_{DS}=1A	-	14	26	ns
Turn-Off Delay Time	$t_{d(off)}$		-	44	80	
Turn-On Rise Time	t_r		-	10	19	
Turn-On Fall Time	t_f		-	12	23	
Gate-Resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1MHz	1.9	2.4	2.9	Ω

Typical Characteristics

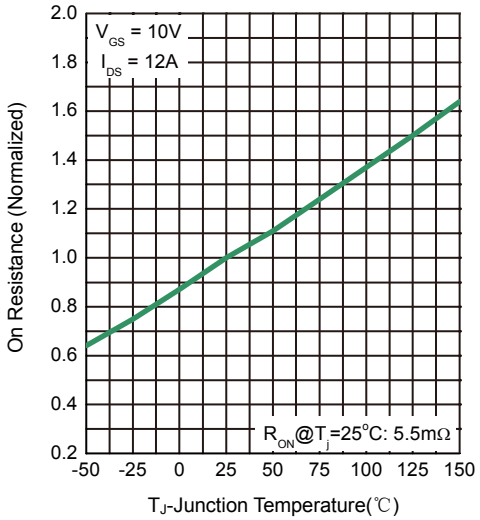


Fig 1. On Resistance vs. Junction Temperature

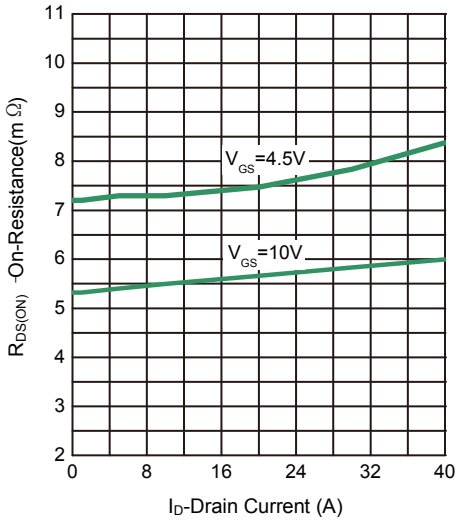


Fig 2. On-Resistance vs. Drain Current

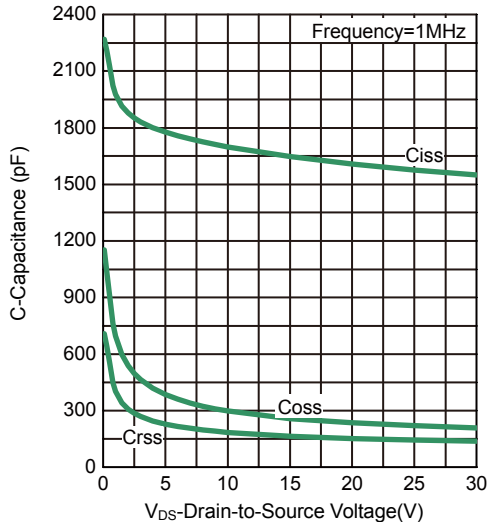


Fig 3. Capacitance

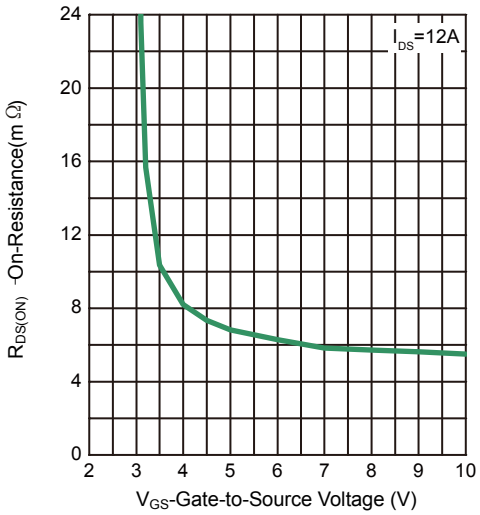


Fig 4. On-Resistance vs. Gate-to-Source Voltage

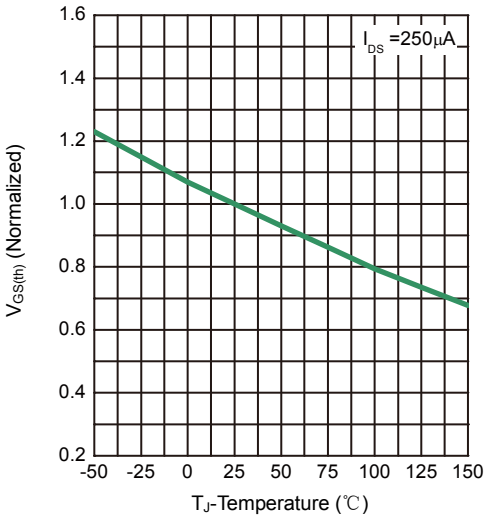


Fig 5. Threshold Voltage

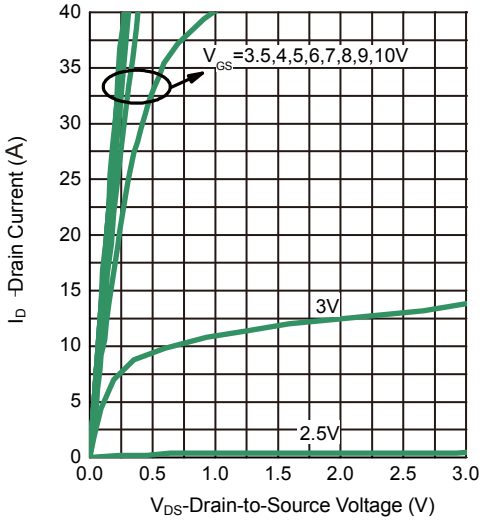


Fig 6. On-Region Characteristics

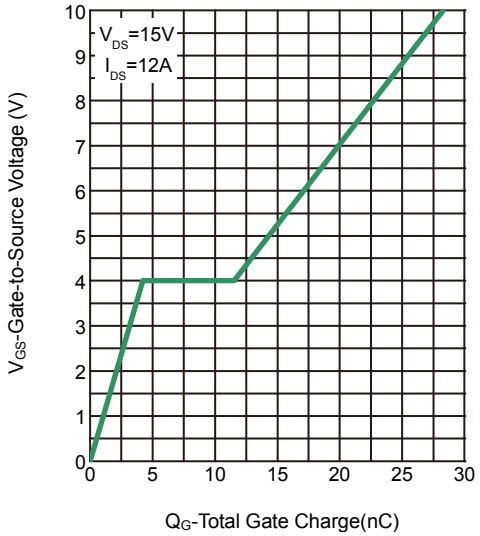


Fig 7. Gate Charge

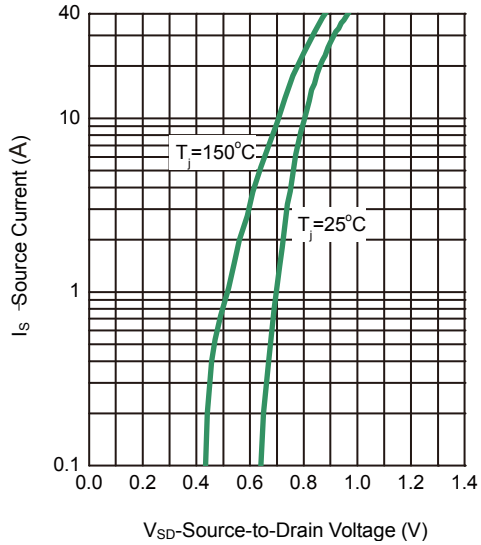


Fig 8. Source to Drain Diode Forward Voltage

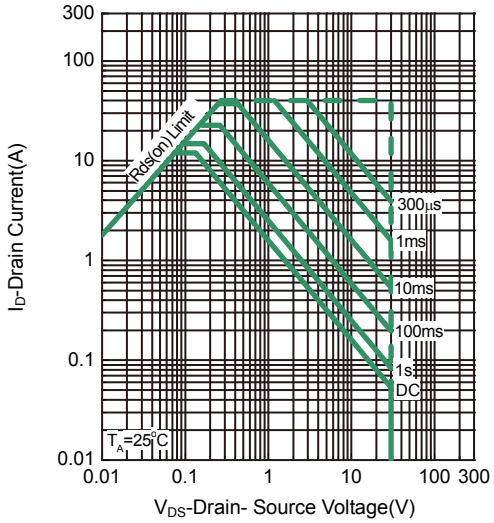


Fig 9. Maximum Forward Biased Safe Operating Area

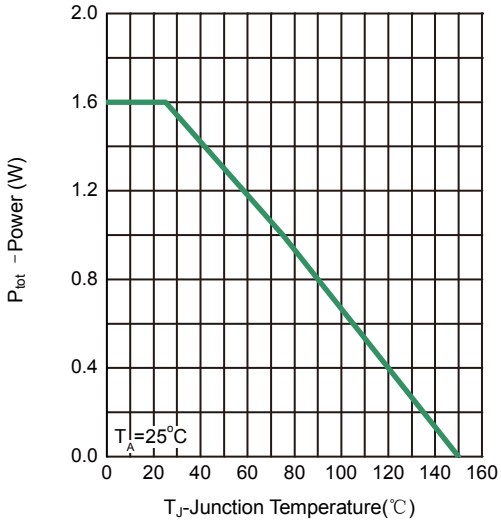


Fig 10. Power Dissipation

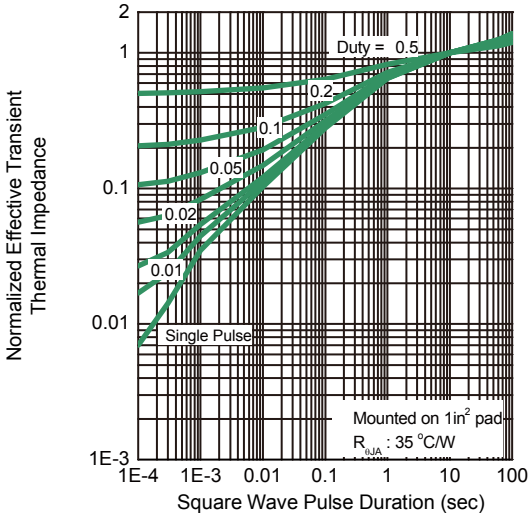
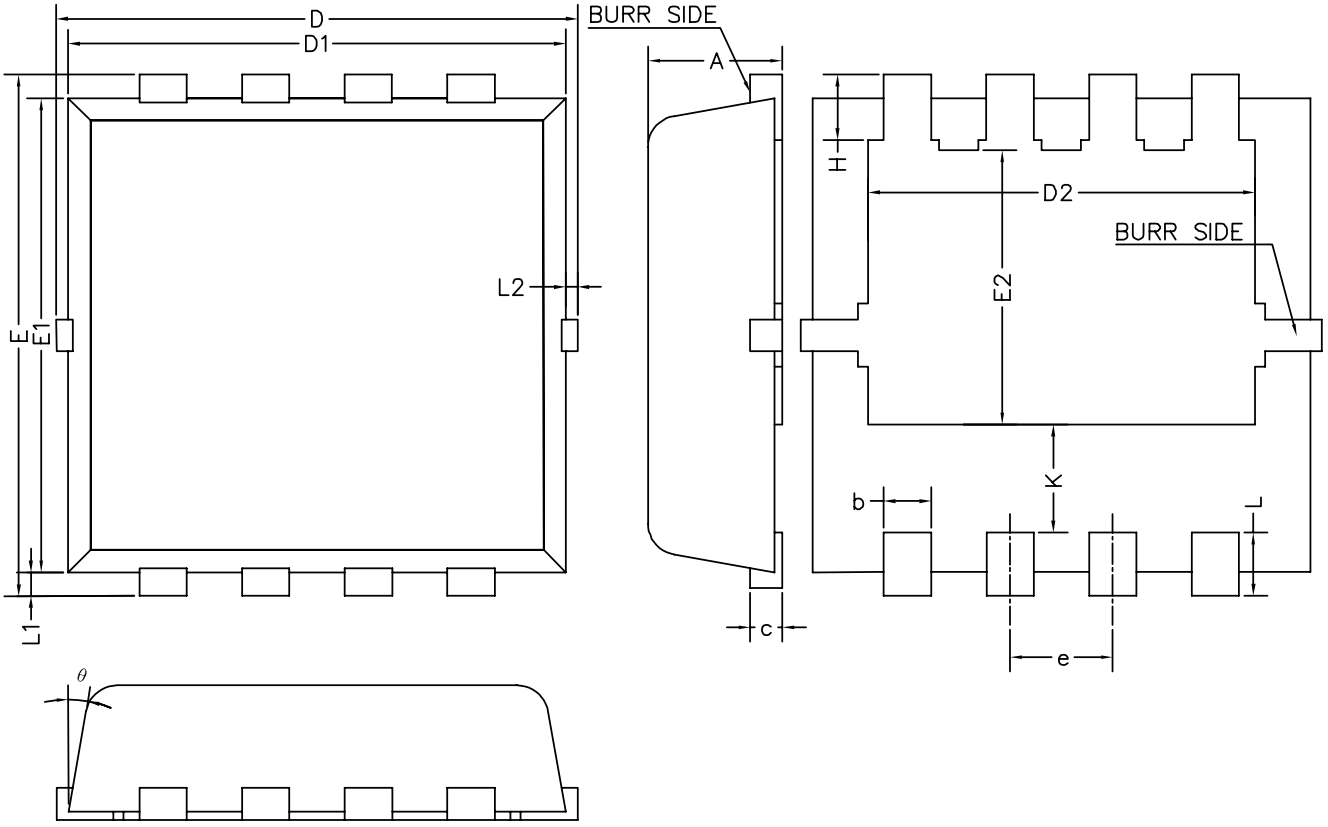


Fig 11.Normalized Thermal Transient Impedance, Junction-to-Ambient

Product dimension (PDFN3.3*3.3-8L)



Dim	Millimeters		
	MIN	MAX	MAX
A	0.70	0.80	0.90
b	0.25	0.30	0.35
c	0.14	0.15	0.20
D	3.10	3.30	3.50
D1	3.05	3.15	3.25
D2	2.35	2.45	2.55
e	0.55	0.65	0.75
E	3.10	3.30	3.50
E1	2.90	3.00	3.10
E2	1.64	1.74	1.84
H	0.32	0.42	0.52
K	0.59	0.69	0.79
L	0.25	0.40	0.55
L1	0.10	0.15	0.20
L2	—	—	0.15
θ	8°	12°	12°

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