

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	72mΩ@10V	14A
	86mΩ@4.5V	

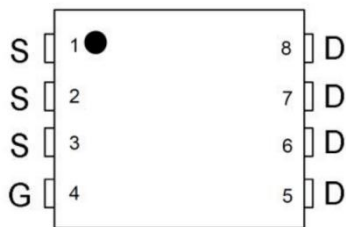
Feature

- Fast Switching
- Extremely low switching loss
- Excellent Rdson and Low Gate Charge

Application

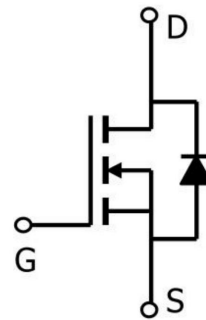
- Power Management
- Switched mode power supply

Package

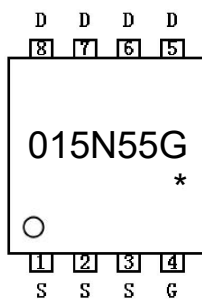


PDFN3*3-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾ ($T_C = 25^\circ\text{C}$)	I_D	14	A
Pulsed Drain Current ²⁾ ($T_C = 25^\circ\text{C}$)	I_{DM}	56	A
Power Dissipation ³⁾ ($T_C = 25^\circ\text{C}$)	P_D	52	W
Single pulse avalanche energy ⁴⁾	E_{AS}	10	mJ
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.4	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

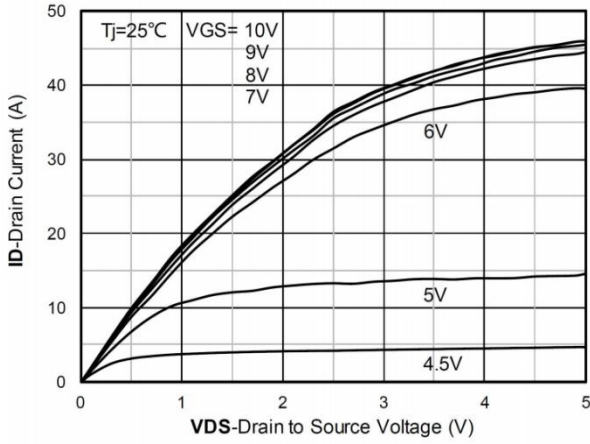
Electrical characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	150			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 120V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.0	2.0	3.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$		55	72	m Ω
		$V_{GS} = 4.5V, I_D = 6A$		65	86	
Dynamic characteristics⁵⁾						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1\text{MHz}$		576		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			2.4		
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 14A$		2.6		nC
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			7.1		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 30V, V_{GS} = 10V, I_D = 2A, R_G = 2.5\Omega$		9		nS
Turn-on rise time	t_r			7		
Turn-off delay time	$t_{d(off)}$			13		
Turn-off fall time	t_f			4		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 1A$			1.2	V

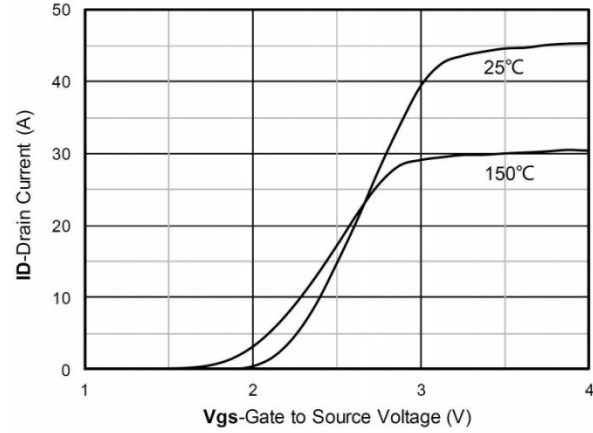
Notes:

- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3) P_D is based on max. junction temperature, using junction-case thermal resistance.
- 4) $V_{DD} = 50V, V_{GS} = 10V, R_G = 25\Omega, L = 0.5\text{mH}$, starting $T_J = 25^\circ\text{C}$.
- 5) Guaranteed by design, not subject to production.

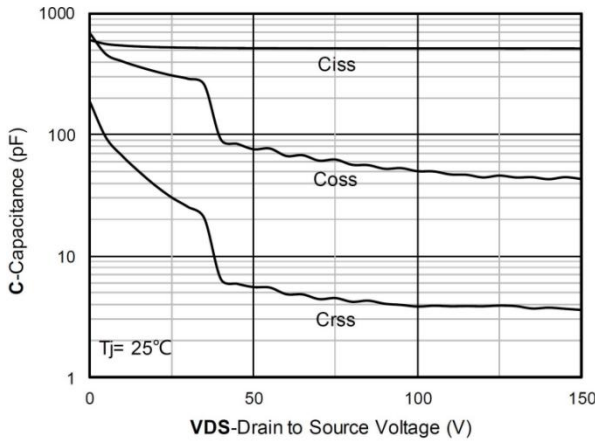
Typical Characteristics



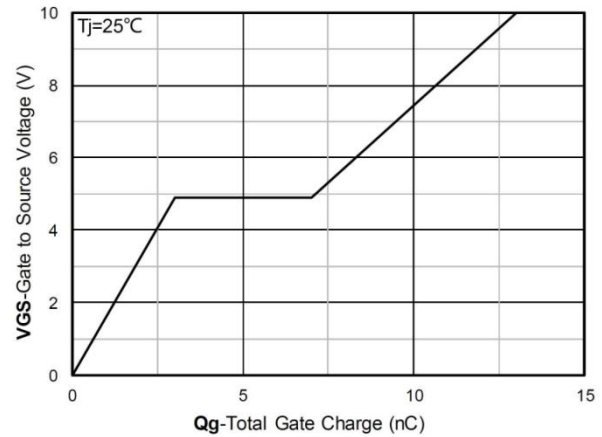
Output Characteristics



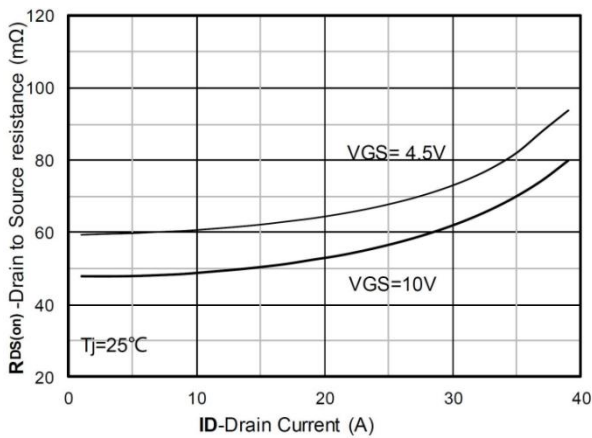
Transfer Characteristics



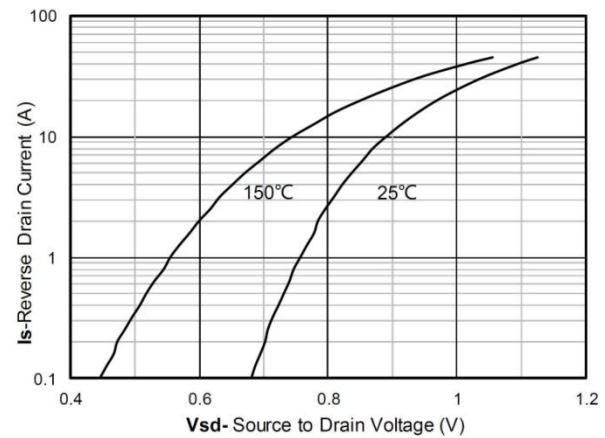
Capacitance Characteristics



Gate Charge

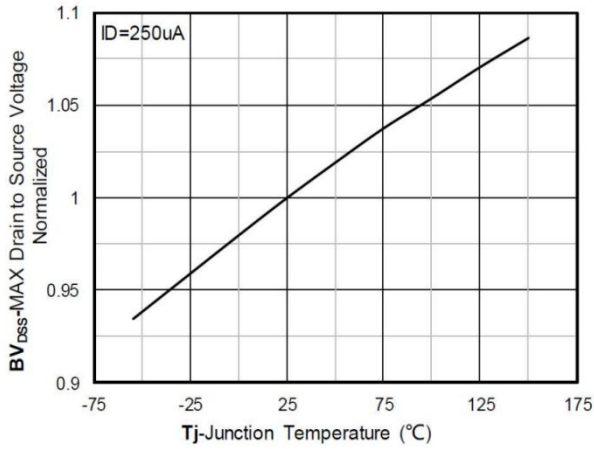


RDS(on) VS Drain Current

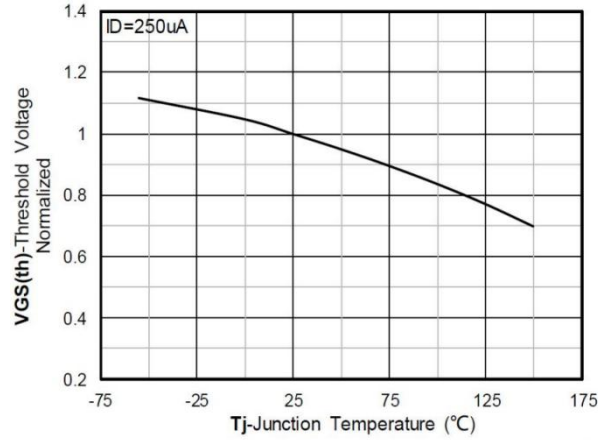


Forward characteristics of reverse diode

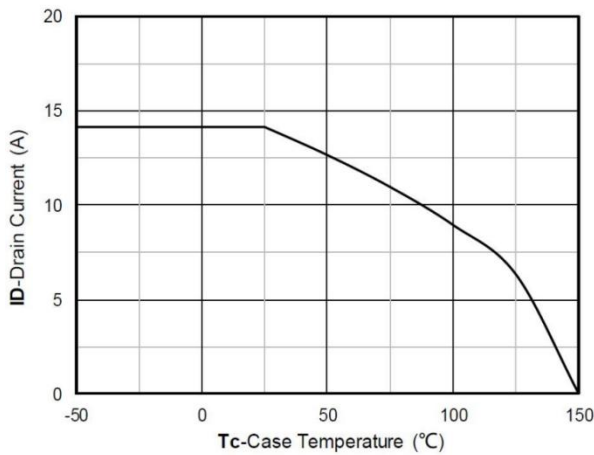
Typical Characteristics



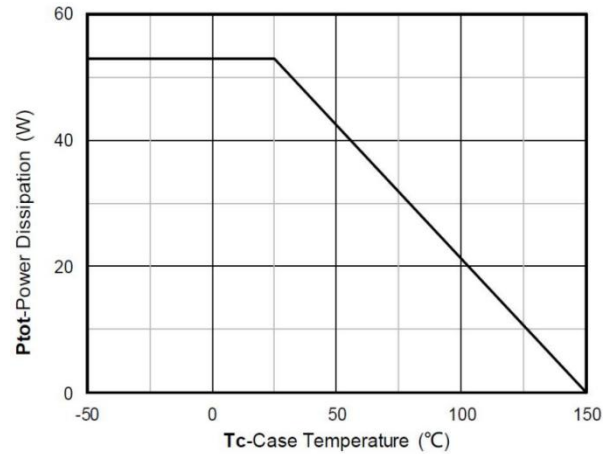
Normalized breakdown voltage



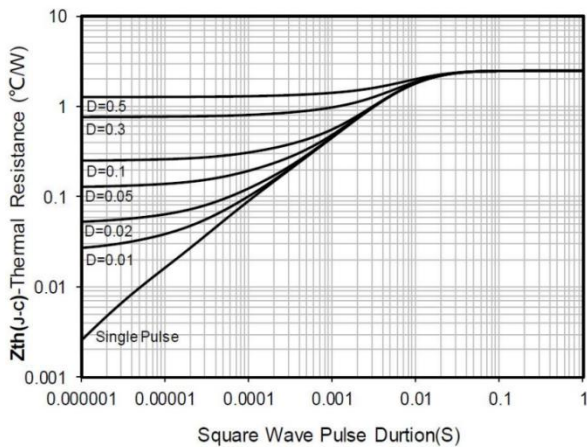
Normalized Threshold voltage



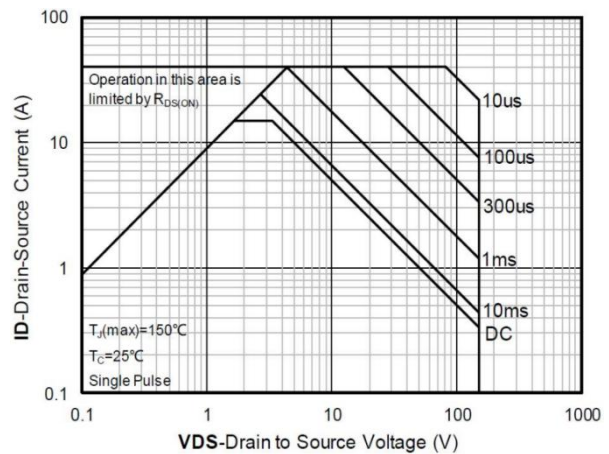
Current dissipation



Power dissipation

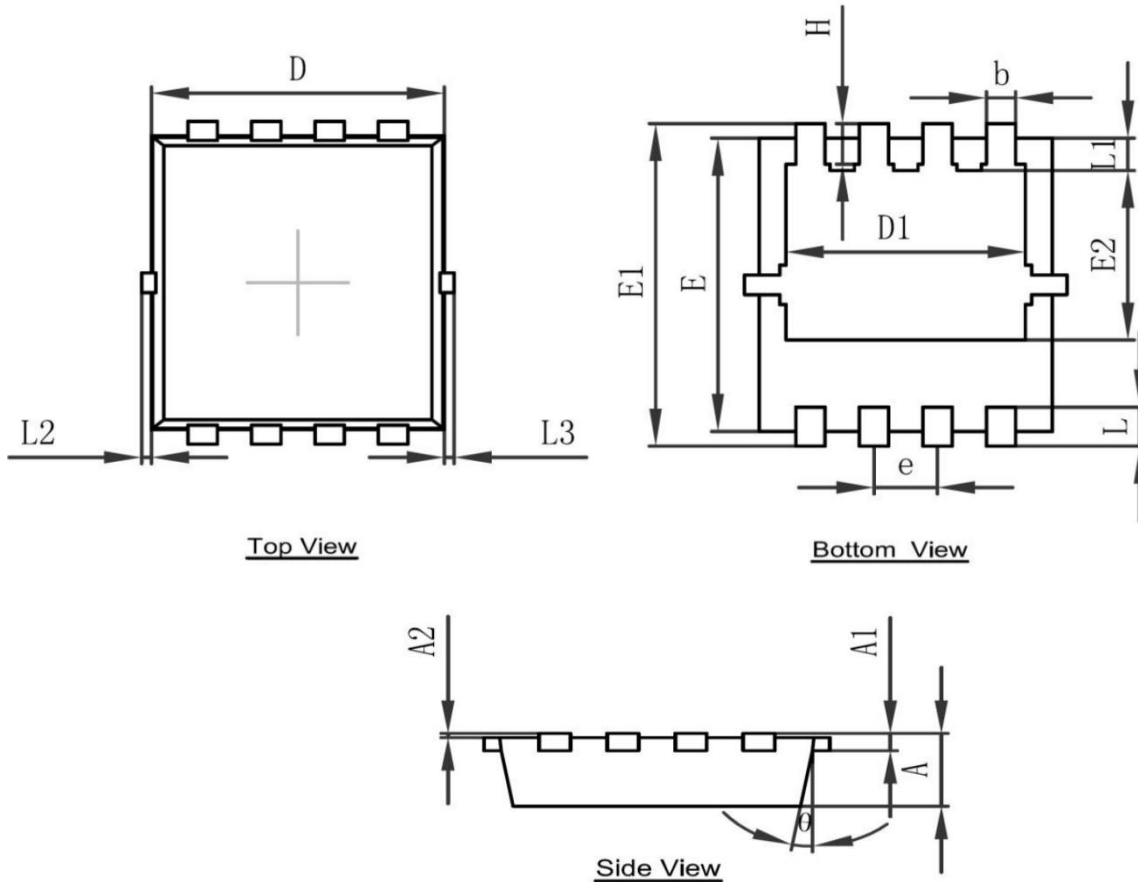


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN3*3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	-	0.050	-	0.002
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	-	0.100	-	0.004
L3	-	0.100	-	0.004
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°