

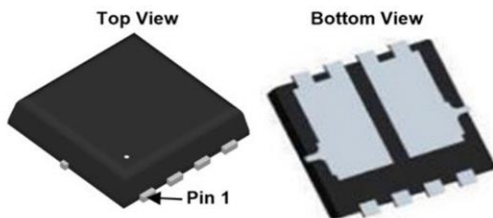
Features

- 30V, 20A
 $R_{DS(ON)} < 21.6m\Omega @ V_{GS} = 10V$
 $R_{DS(ON)} < 30m\Omega @ V_{GS} = 4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free

Application

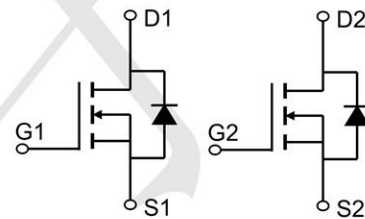
- Load Switch
- PWM Application
- Power Management

Package and Pin Configuration



PDFN3x3-8L

Circuit diagram



Marking: 304

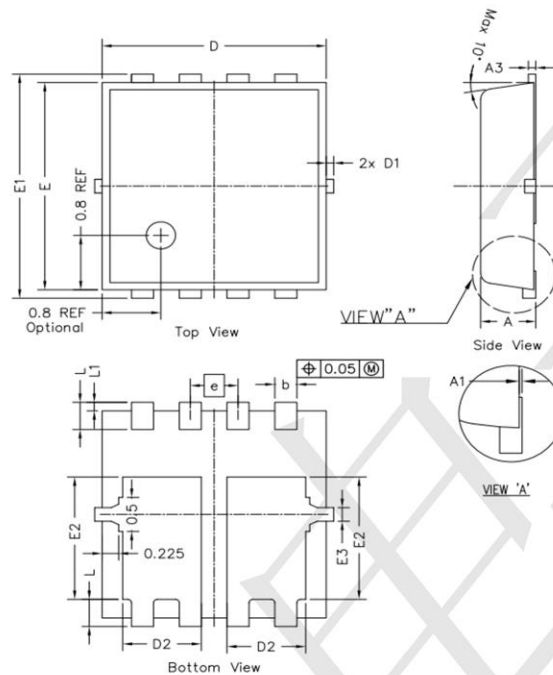
Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	A
		$T_C = 100^\circ\text{C}$	
I_{DM}	Pulsed Drain Current ⁽¹⁾	48	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	12	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁽³⁾	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	8.3	
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} = 0V	-	-	1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.5	2.5	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽⁴⁾	V _{GS} = 10V, I _D = 5A	-	16.6	21.6	mΩ
		V _{GS} = 4.5V, I _D = 3A	-	23.1	30.0	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	-	485	-	pF
C _{oss}	Output Capacitance		-	69	-	pF
C _{rss}	Reverse Transfer Capacitance		-	53	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to 10V V _{DD} = 15V, I _D = 5A	-	10	-	nC
Q _{gs}	Gate Source Charge		-	2	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	2	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = 10V, V _{DD} = 15V I _D = 5A, R _{GEN} = 3Ω	-	4	-	ns
t _r	Turn-On Rise Time		-	11	-	ns
t _{d(off)}	Turn-Off DelayTime		-	14	-	ns
t _f	Turn-Off Fall Time		-	2	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	20	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	48	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = 12A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F =5A,di/dt=100A/μs	-	7.5	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	2	-	nC

PDFN3X3-8L Package information



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.750	0.800	0.028	0.030	0.031
A1	---	---	0.050	----	----	0.002
A3	0.144	0.152	0.202	0.006	0.006	0.008
b	0.250	0.300	0.350	0.010	0.012	0.014
e	0.65 BSC			0.026 BSC		
D	2.950	3.050	3.150	0.116	0.120	0.124
E	2.950	3.050	3.150	0.116	0.120	0.124
D1	---	---	0.125	----	----	0.005
E1	3.200	3.300	3.400	0.126	0.130	0.134
D2	0.970	1.070	1.170	0.038	0.042	0.046
E2	1.700	1.800	1.900	0.067	0.071	0.075
E3	0.150	0.200	0.250	0.006	0.008	0.010
L	0.300	0.400	0.500	0.012	0.016	0.020
L1	0.075	0.125	0.175	0.003	0.005	0.007