

Description

The PPM6N30V8 uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

MOSFET Product Summary

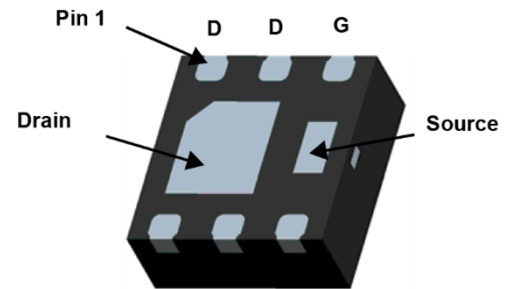
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)(Typ)$	$I_D(A)$
-30	27 @ $V_{GS}=-10V$	-8

Feature

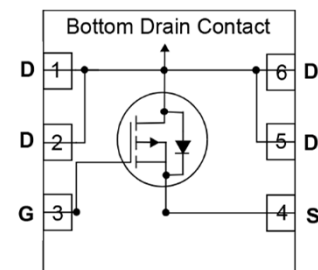
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

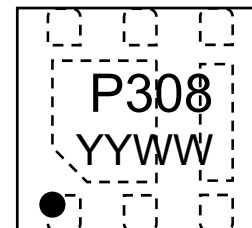
- PWM applications
- Load switch
- Power management



**DFN2020-6L
(Bottom View)**



Circuit Diagram



Marking (Top View)

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-source Voltage	V_{DS}	-30	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	-8.0	A
Total Power Dissipation	P_D	2.1	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Thermal Characteristics

Rating	Symbol	Value	Units
Thermal Resistance, Junction to Ambient ¹⁾	$R_{\theta JA}$	59	°C/W
Thermal Resistance, Junction to Ambient ²⁾	$R_{\theta JA}$	143	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.0	°C/W

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$	-	-	-1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics ³⁾						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.1	-1.5	-1.9	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$	-	30	45	m Ω
		$V_{GS} = -10V, I_D = -5A$	-	27	41	
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -9A$	21	-	-	S
Dynamic Parameters ⁴⁾						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1MHz$	-	650	-	pF
Output Capacitance	C_{oss}		-	90	-	
Reverse Transfer Capacitance	C_{rss}		-	80	-	
Switching Parameters ⁴⁾						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V, I_D = -9A,$ $V_{GS} = -10V, R_{GEN} = 6\Omega$	-	4.5	-	ns
Turn-on Rise Time	t_r		-	21	-	
Turn-Off Delay Time	$t_{d(off)}$		-	24	-	
Turn-Off Fall Time	t_f		-	31	-	
Total Gate Charge	Q_g	$V_{DD} = -15V, I_D = -9A,$ $V_{GS} = -10V$	-	15.3	-	nC
Gate-Source Charge	Q_{gs}		-	1.7	-	
Gate-Drain Charge	Q_{gd}		-	3.6	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ³⁾	V_{SD}	$V_{GS} = 0V, I_S = -2A$	-	-0.6	-1.2	V
Diode Forward Current ²⁾	I_S	-	-	-	2.5	A

Notes:

1. Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper
2. Surface mounted on FR4 board using minimum pad size, 1oz copper
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics

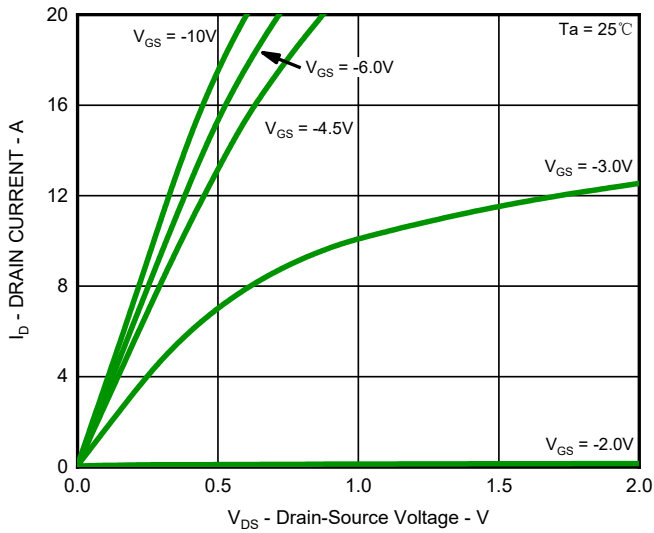


Fig.1 Output Characteristics

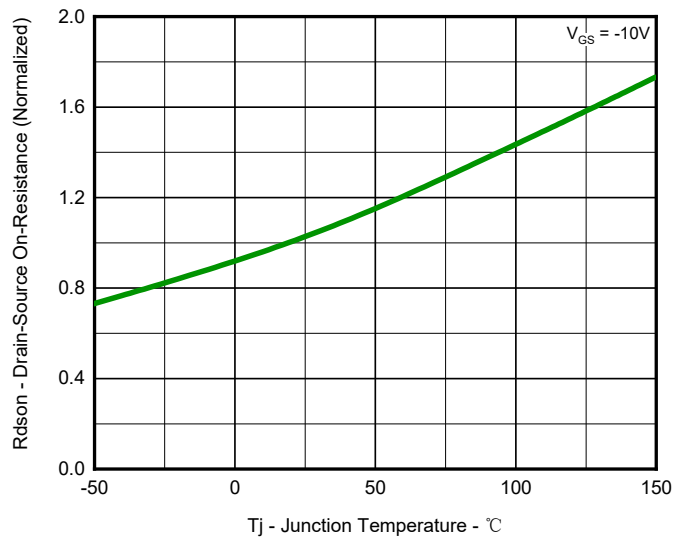


Fig.2 On-Resistance Variation with Temperature

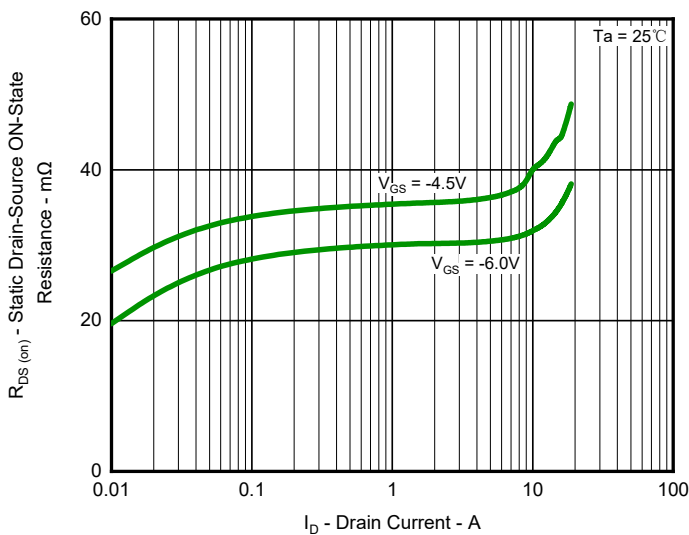


Fig.3 On-Resistance vs. Drain Current

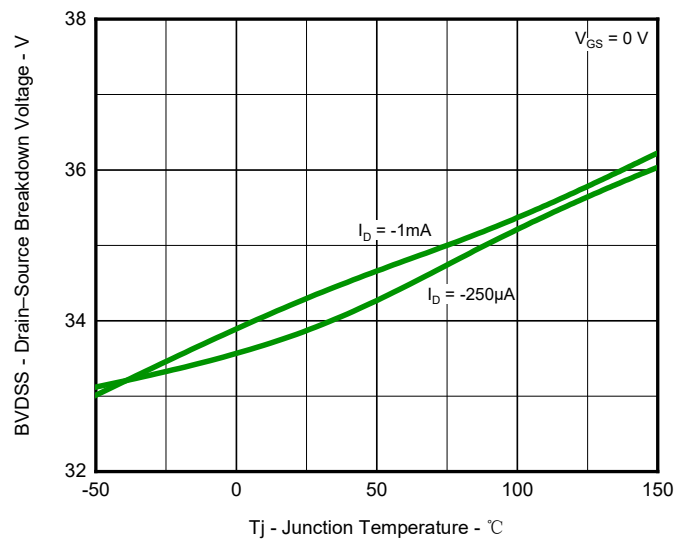


Fig.4 BVDSS vs Junction Temperature

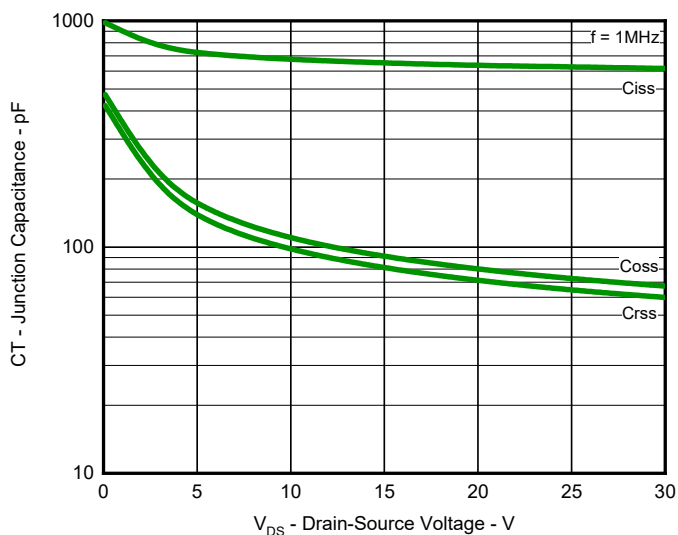


Fig.5 Typical Junction Capacitance

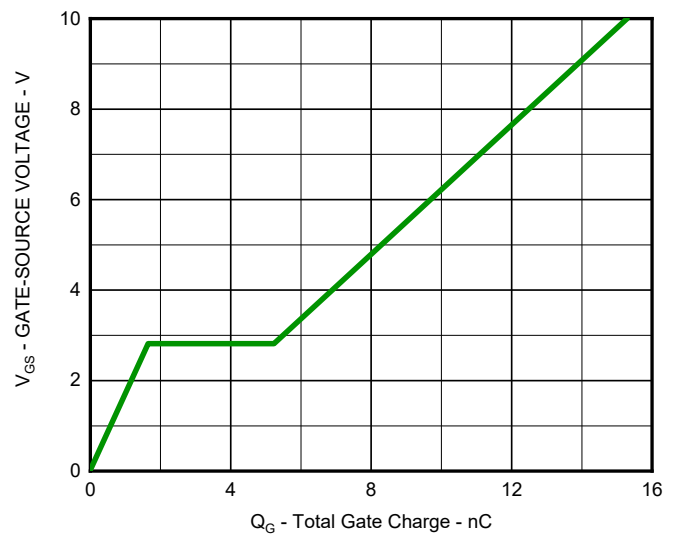


Fig.6 Gate Charge Characteristics

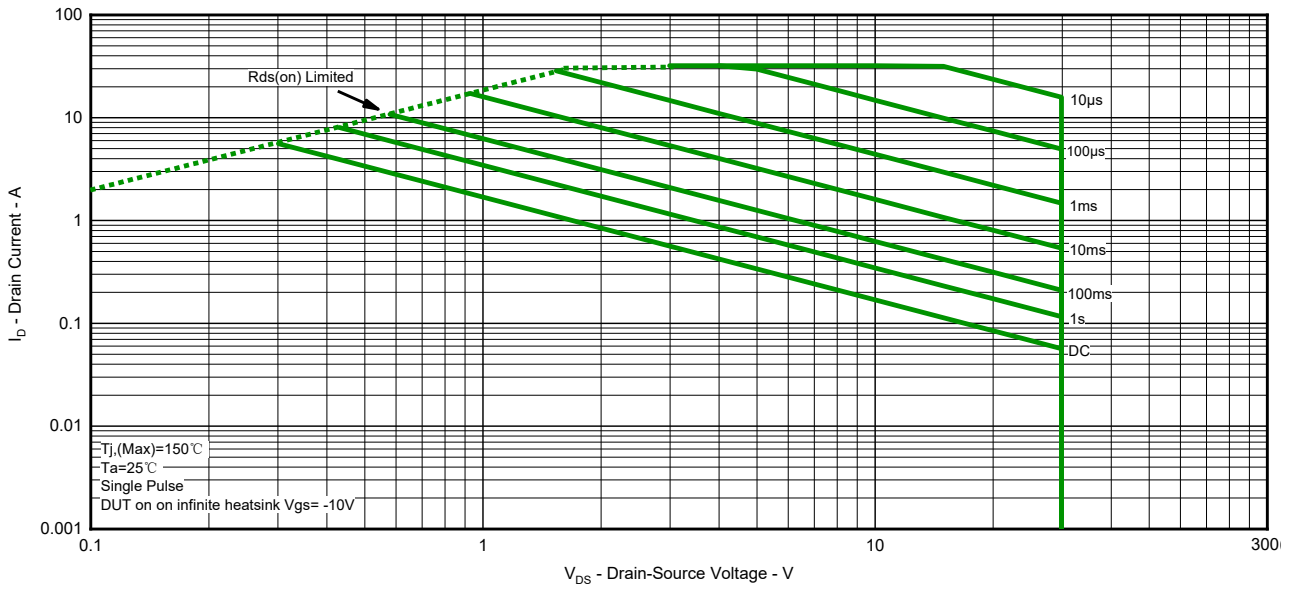


Fig.7 Safe Operation Area

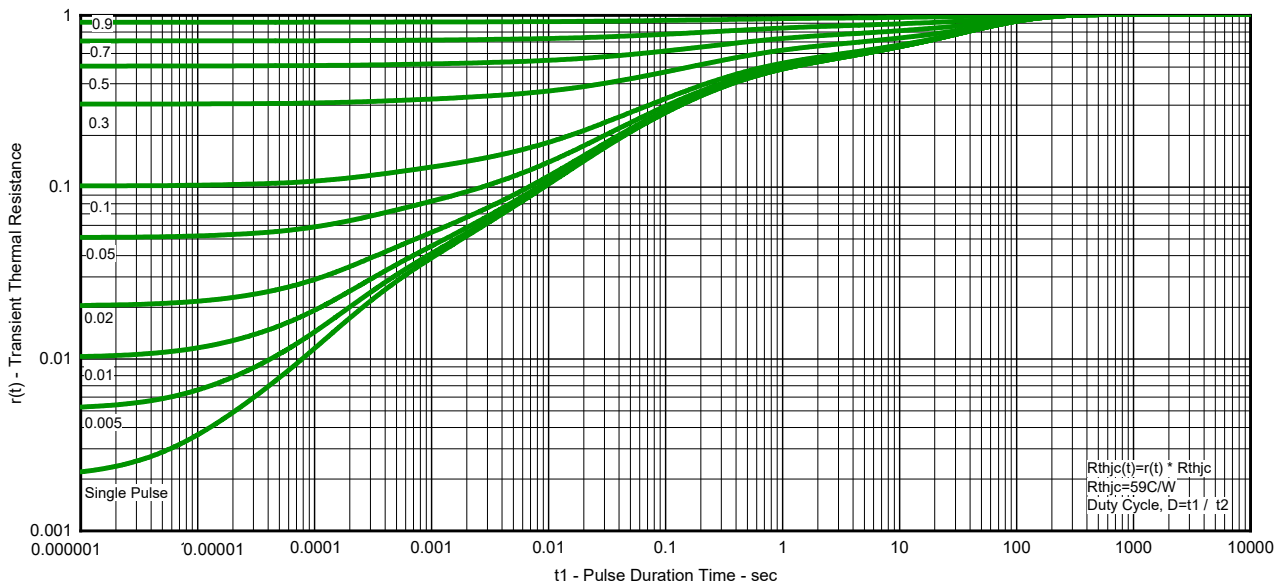
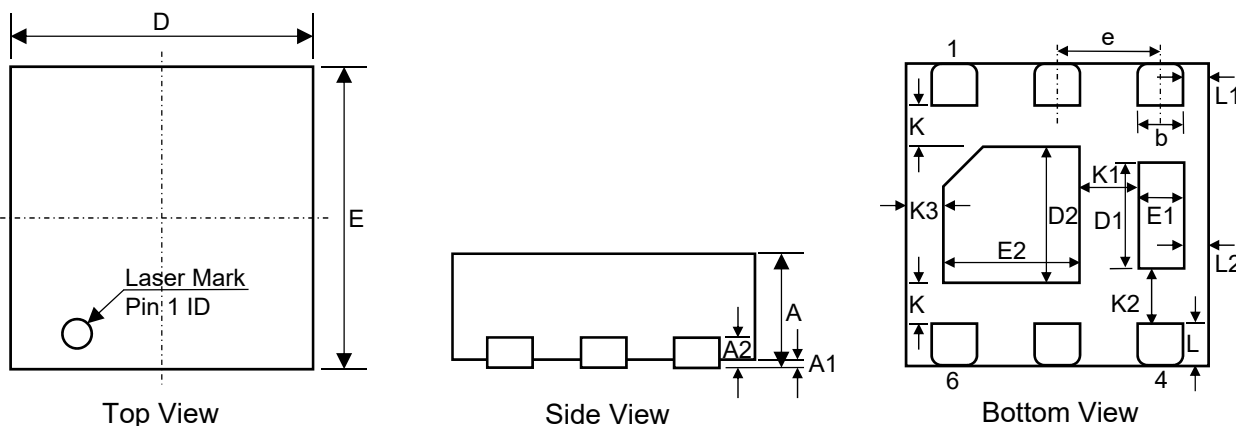
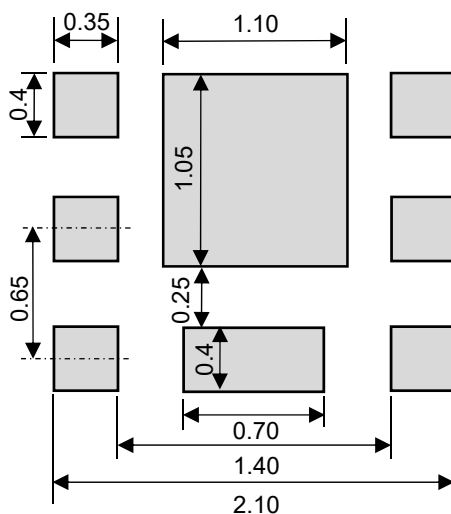


Fig.8 Transient Thermal Resistance

Product dimension (DFN2020-6L)



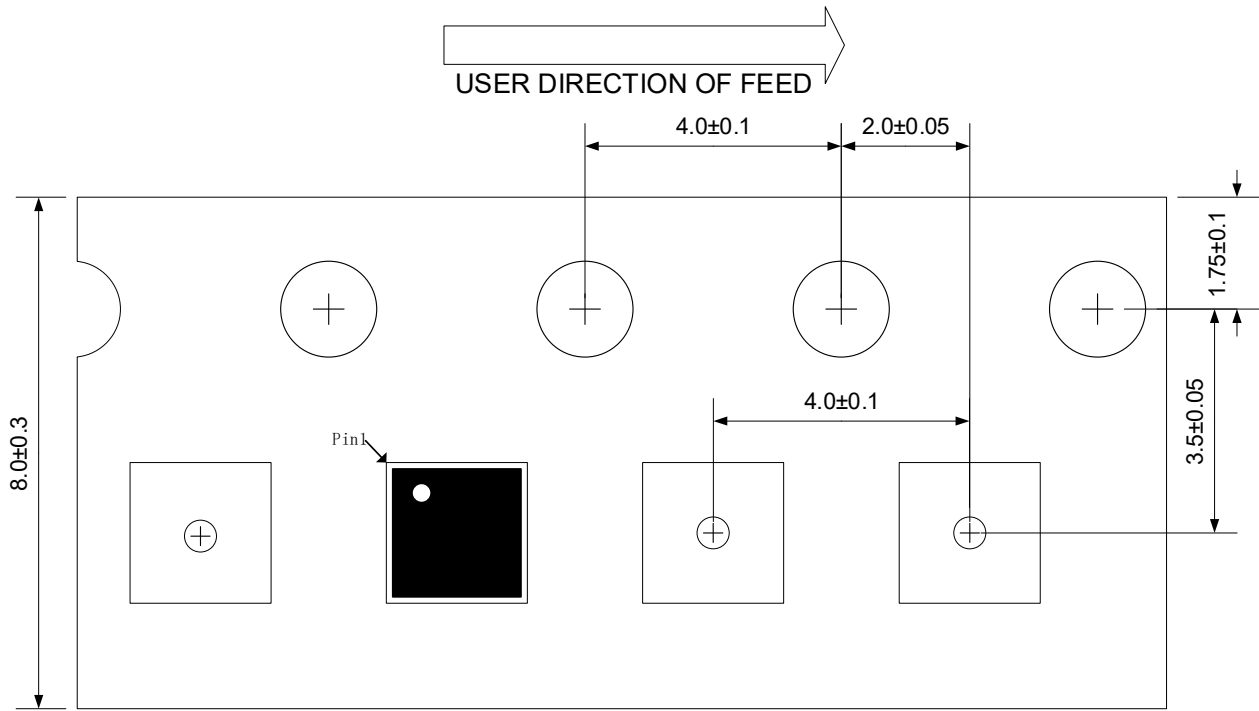
Dim	Millimeters		Inches		Dim	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.70	0.80	0.028	0.031	E2	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002	e	0.65 BSC.		0.026 BSC.	
A2	0.203 Ref.		0.008 Ref.		K	0.275 Ref.		0.011 Ref.	
b	0.25	0.35	0.010	0.014	K1	0.35 Ref.		0.014 Ref.	
D	1.90	2.10	0.075	0.083	K2	0.47 Ref.		0.019 Ref.	
D1	0.46	0.66	0.018	0.026	K3	0.25 Ref.		0.010 Ref.	
D2	0.85	1.05	0.033	0.041	L	0.20	0.30	0.008	0.012
E	1.90	2.10	0.075	0.083	L1	0.20 Ref.		0.008 Ref.	
E1	0.20	0.40	0.008	0.016	L2	0.20 Ref.		0.008 Ref.	



Unit: mm

Suggested PCB Layout

Load with information




Unit:mm

Ordering information

Device	Package	Reel	Shipping
PPM6N30V8	DFN2020-6L	7"	3000 / Tape & Reel


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