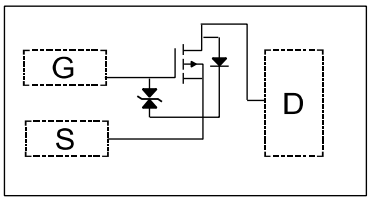
Description

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

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(Ω)	I_D(mA)
-20	0.45@ V_{GS}=-4.5V	-800
	0.62@ V_{GS}=-2.5V	
	0.86@ V_{GS}=-1.8V	



Top View

Absolute maximum rating@25℃

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current	Continuous	I_D	-800	mA
	Pulsed	I_{DP}	-1200	
Maximum Power Dissipation (Note 1)(Note 4)	TA=25°C	P_D	270	mW
	TA=70°C		170	
Maximum Power Dissipation (Note 2)(Note 4)	TA=25°C	P_D	240	mW
	TA=70°C		150	
Pulsed Drain Current(Note 3)		I_{DM}	-1.2	A
Operating Junction Temperature		T_J	150	℃
Lead Temperature		T_L	260	℃
Storage Temperature Range		T_{stg}	-55 to +150	℃

Thermal resistance

Parameter		Symbol	Min.	Typ.	Max.	Units
Junction-to-Ambient Thermal Resistance (Note 1)	t ≤ 10 s	$R_{\theta JA}$	-	350	400	°C/W
	Steady State		-	395	460	°C/W
Junction-to-Ambient Thermal Resistance (Note 2)	t ≤ 10 s	$R_{\theta JA}$	-	390	445	°C/W
	Steady State		-	450	515	°C/W
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JA}$	-	245	290	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	I_D =-250uA,V_{GS}=0V	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-16V,V_{GS}=0V	-	-	-1	μA
Gate-to-source Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±8V	-	-	±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = -250uA	-0.45	-0.55	-0.85	V
Drain-to-source On-resistance (Note 5)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D =-700mA	-	450	700	mΩ
		V_{GS}=-2.5V, I_D =-300mA	-	620	850	mΩ
		V_{GS}=-1.8V, I_D =-100mA	-	1000	1500	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D =-450mA	-	1.25	-	s
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =-10V, f=1MHz	-	72	-	pF
Output Capacitance	C_{OSS}		-	9.5	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	9.8	-	pF
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} =-4.5V,V_{DS}=-10V, I_D =-450mA	-	0.9	-	nC
Threshold Gate Charge	$Q_{G(TH)}$		-	0.1	-	nC
Gate-to-Source Charge	Q_{GS}		-	0.15	-	nC
Gate-to-Drain Charge	Q_{GD}		-	0.3	-	nC
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V_{GS} =-4.5V, V_{DS}=-10V , I_D =-450mA R_G=6Ω	-	43	-	nS
Rise Time	tr		-	137	-	nS
Turn-Off Delay Time	td(OFF)		-	1450	-	nS
Fall Time	tf		-	2050	-	nS
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-150mA	-0.5	-0.65	-1.1	V

Note:

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 width<380μs, Single pulse
4. Maximum junction temperature TJ=150°C.
5. Pulse test: Pulse width <380 us duty cycle <2%.

Typical Characteristics

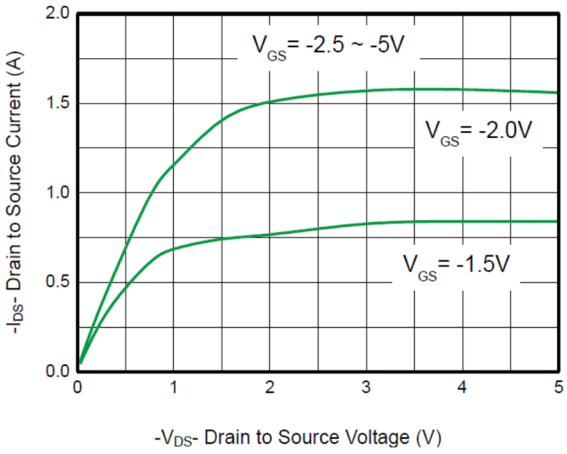


Fig 1. Output characteristics

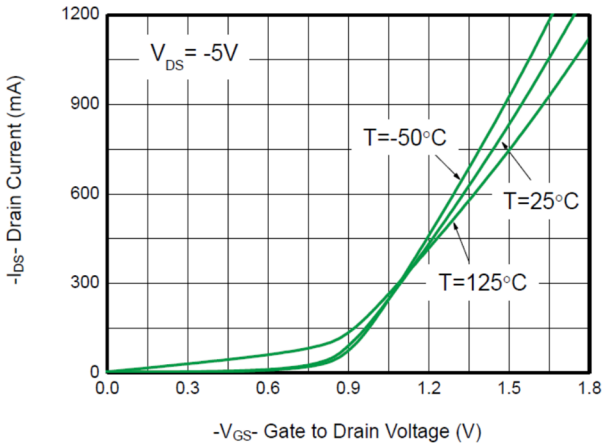


Fig 2. Transfer characteristics

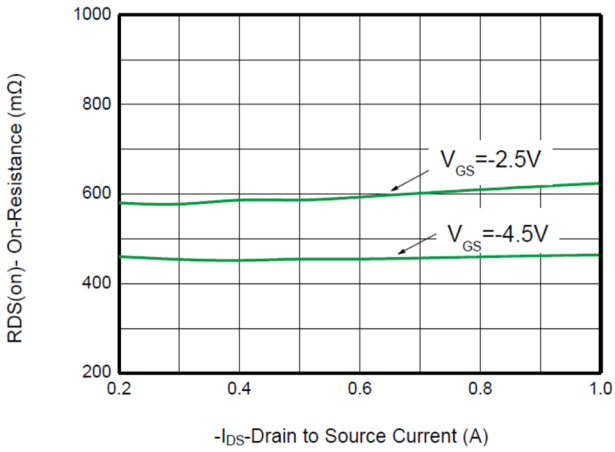


Fig 3. On-Resistance vs. Drain current

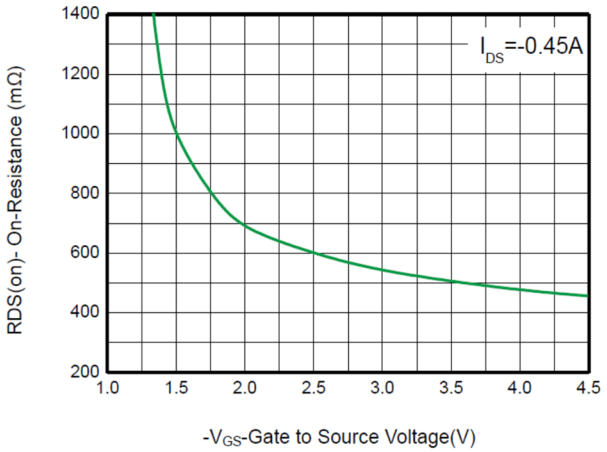


Fig 4. On-Resistance vs. Gate-to-Source voltage

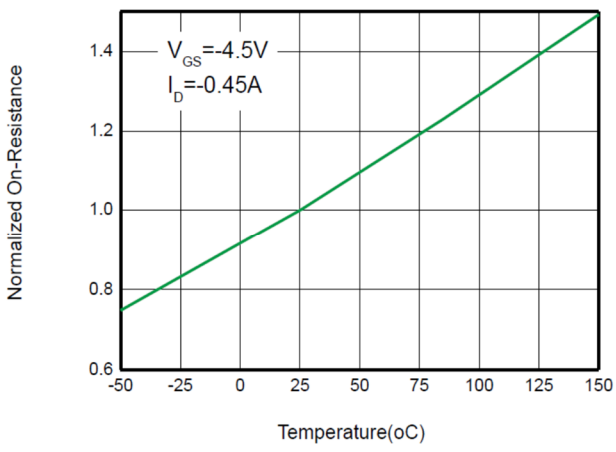


Fig 5. On-Resistance vs. Junction temperature

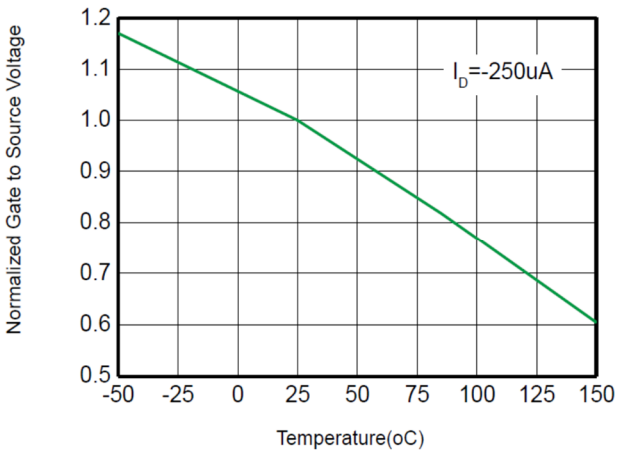


Fig 6. Threshold voltage vs. Temperature

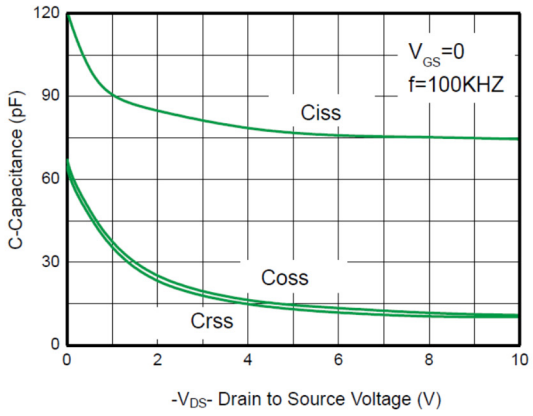


Fig 7. Capacitance.

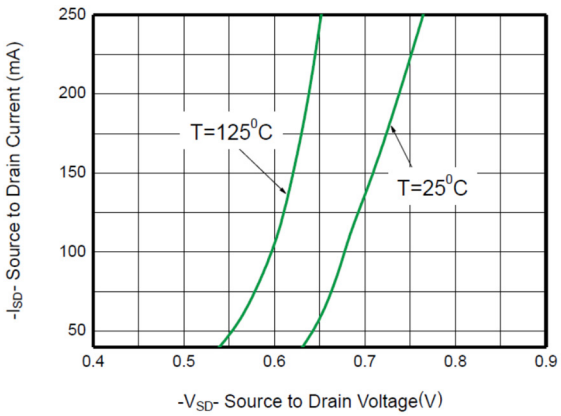
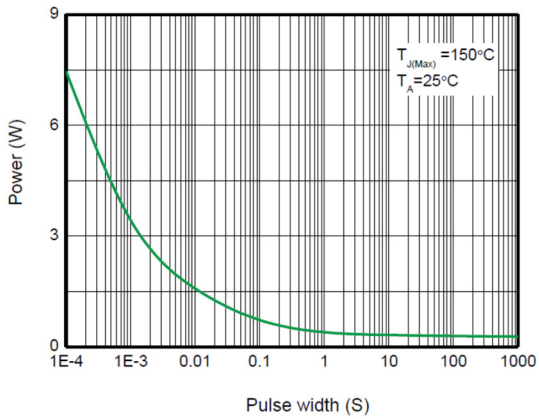
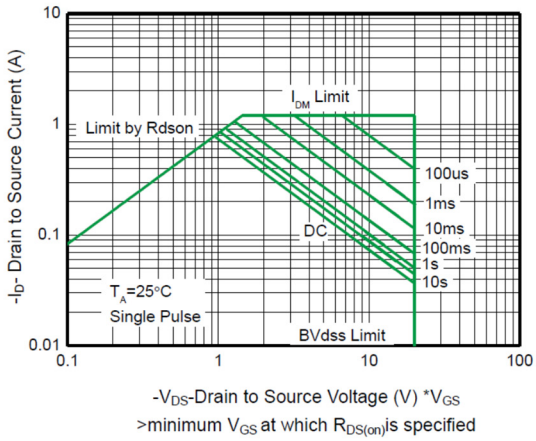
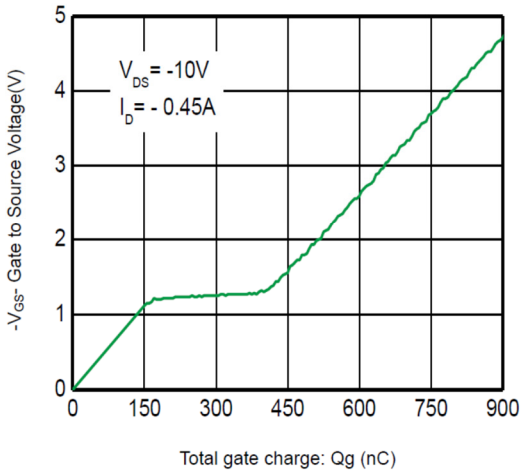
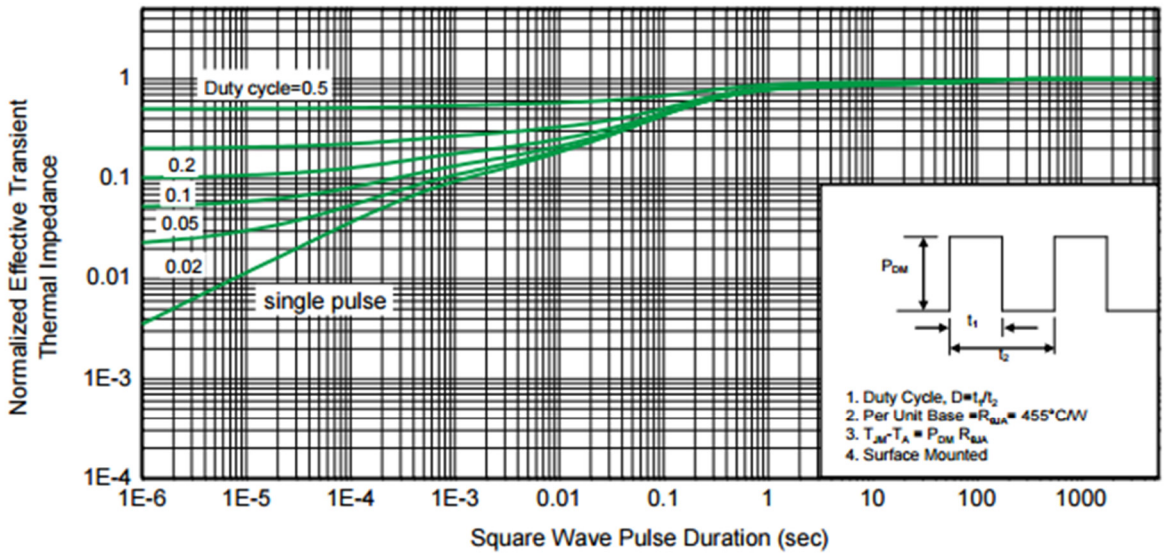


Fig 8. Body diode forward voltage



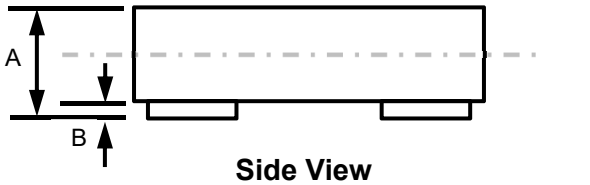




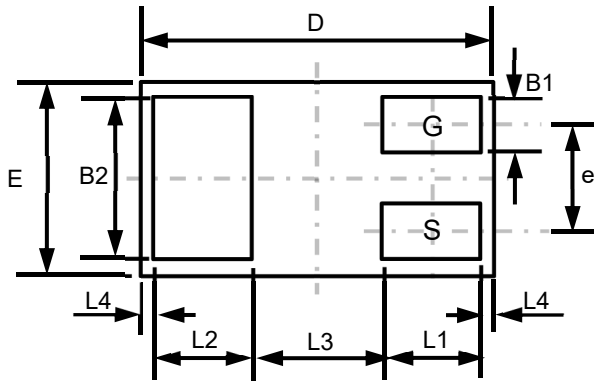


Transient thermal response (Junction-to-Ambient)

Product dimension (DFN1006-3L)

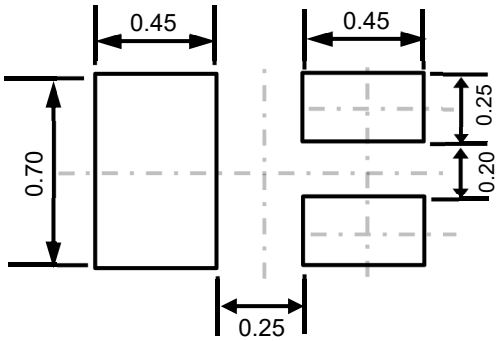


Side View



Bottom View

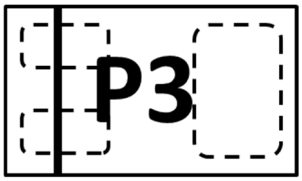
Dim	Millimeters		
	MIN	Typ	MAX
A	0.33	0.47	0.498
B	0.00	0.03	0.05
B1	0.10	0.15	0.20
B2	0.45	0.50	0.55
D	0.85	1.00	1.15
E	0.45	0.60	0.75
e	--	0.35	--
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
L3	--	0.39	--
L4	--	0.05	--



Unit:mm

Suggested PCB Layout

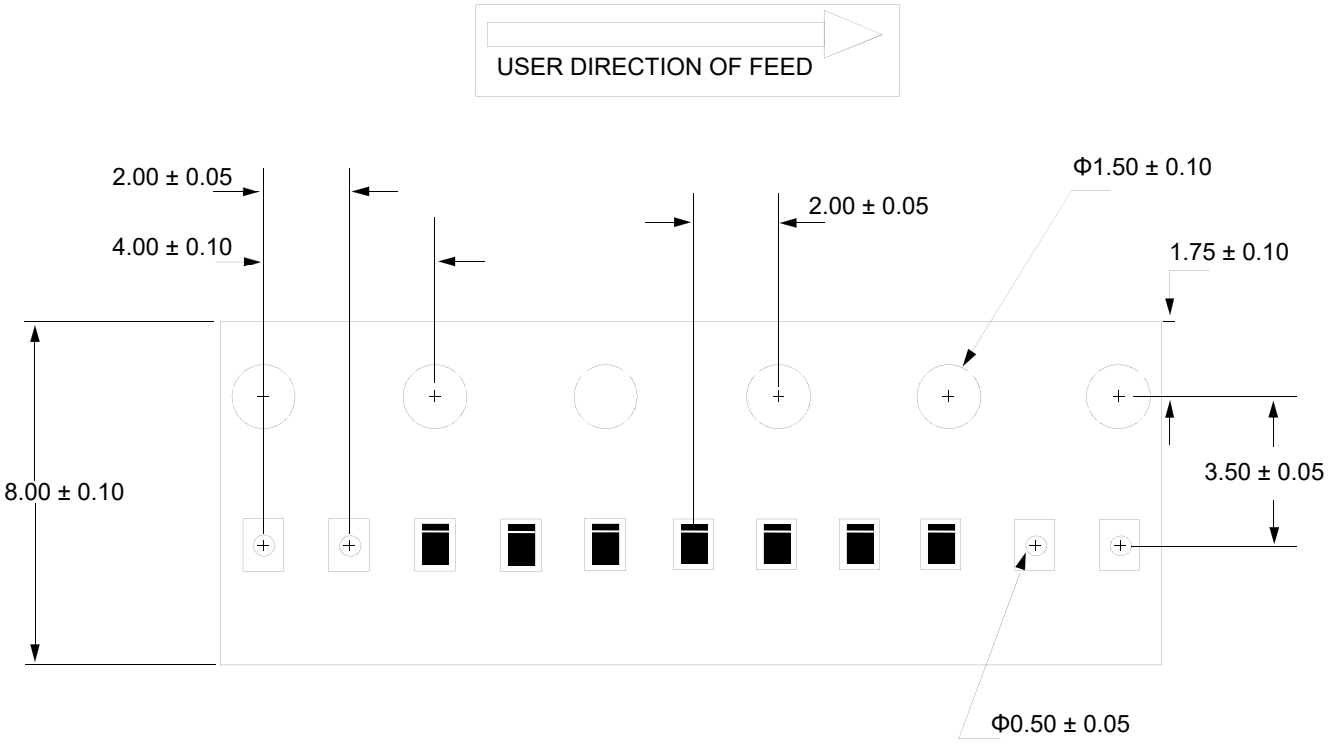
Marking information



Ordering information

Device	Package	Reel	Shipping
PPM3FD20V1E	DFN1006-3L(Pb-Free)	7"	10000 / Tape & Reel

Load with information



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