AT1P2SP030MNC

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	205mΩ@-10V	-1.5A
	345mΩ@-4.5V	

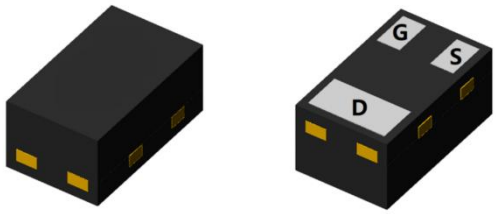
Feature

- High power and current handing capability
- Surface mount package

Application

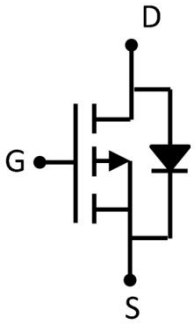
- Load Switch for Portable Devices
- Voltage controlled small signal switch

Package

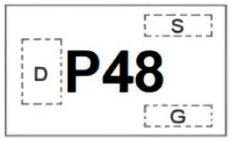


DFN1006-3L

Circuit diagram



Marking



Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] (T_C=25℃)	I_D	-1.5	A
Pulsed Drain Current	I_{DM}	-6	A
Power Dissipation [2](T_C=25℃)	P_D	0.7	W
Thermal Resistance from Junction to Ambient[1]	$R_{\theta JA}$	175	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V,V_{GS} =0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.7	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-1.5A		155	205	mΩ
		V_{GS} =-4.5V, I_D =-1A		265	345	
Dynamic characteristics[3]						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		95		pF
Output Capacitance	C_{oss}			16		
Reverse Transfer Capacitance	C_{rss}			13		
Total Gate Charge	Q_g	V_{DS} =-15V,V_{GS} =-10V, I_D =-2A		1.6		nC
Gate-Source Charge	Q_{gs}			0.4		
Gate-Drain Charge	Q_{gd}			0.47		
Turn-on delay time	$t_{d(on)}$	V_{DS} =-15V, V_{GS} =-10V, I_D =-1A R_g=3Ω		9		nS
Turn-on rise time	t_r			20		
Turn-off delay time	$t_{d(off)}$			45		
Turn-off fall time	t_f			40		

Notes:

1) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

2) Repetitive rating 25mm x 25mm FR4 PCB, D = 0.02, pulse width 300μs - pulse width limited by maximum junction temperature.

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

Fig. 1 - Output Characteristics

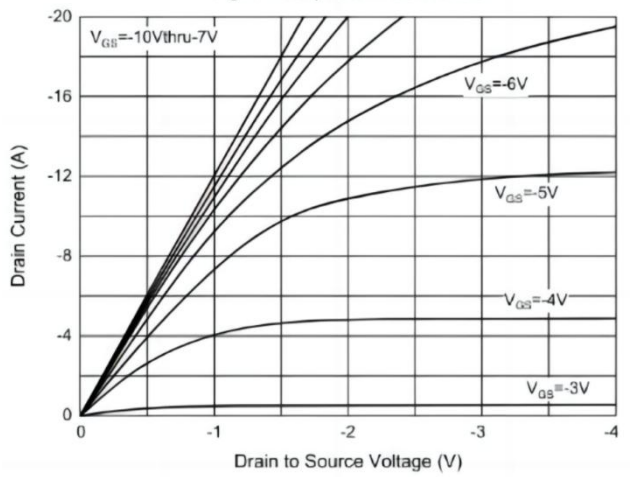


Fig. 2 - Transfer Characteristics

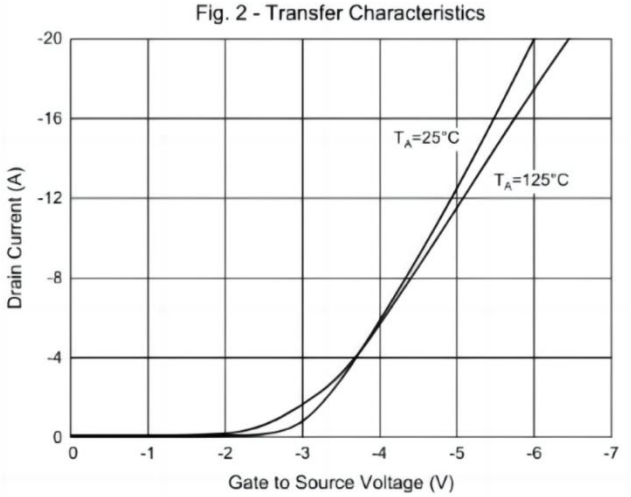


Fig. 3 - $R_{DS(ON)}$—I_D

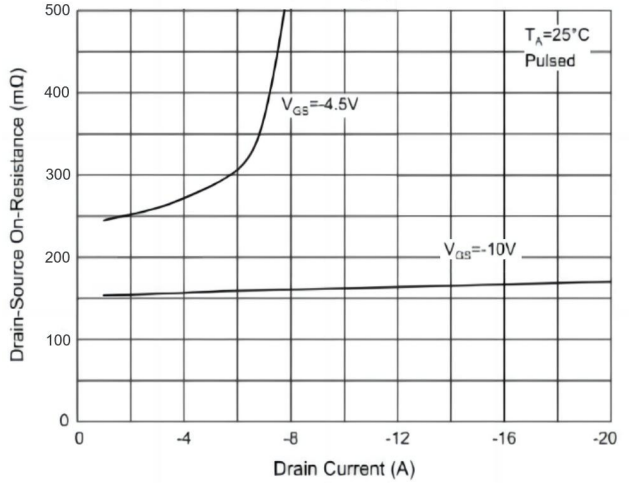


Fig. 4 - $R_{DS(ON)}$—V_{GS}

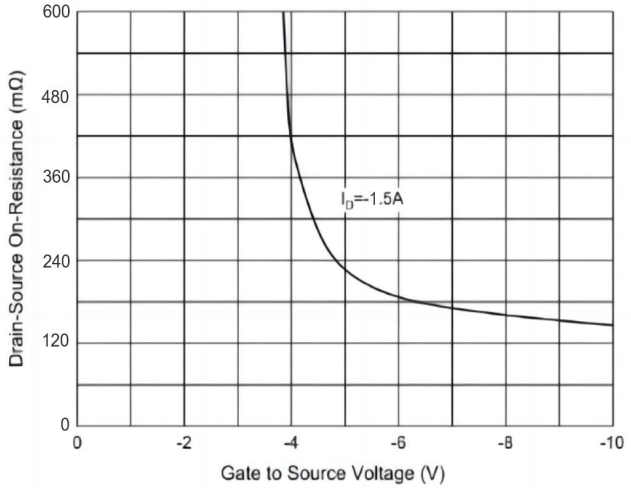


Fig. 5 - Gate Charge

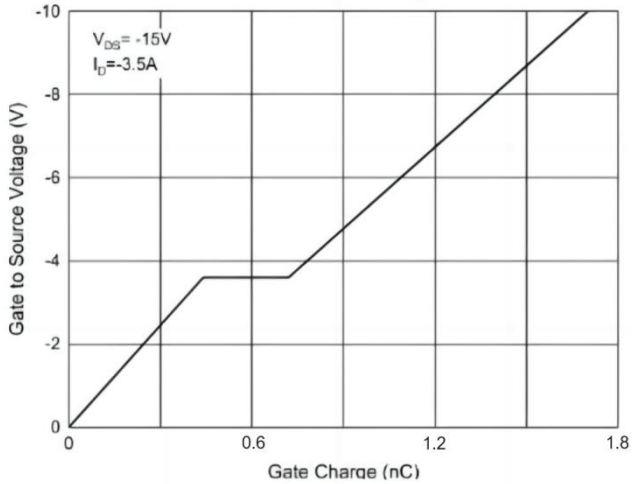
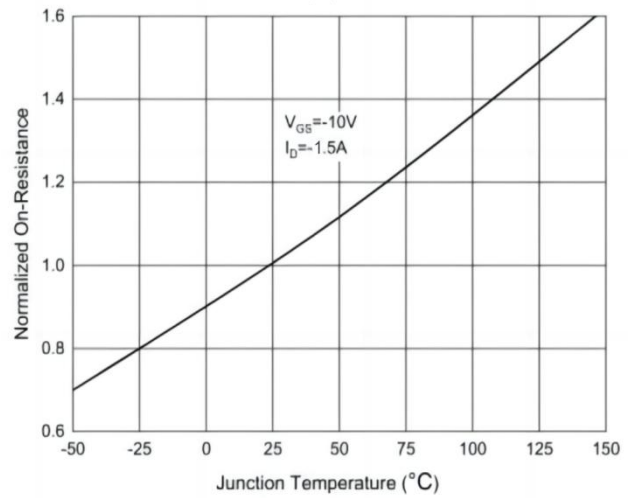
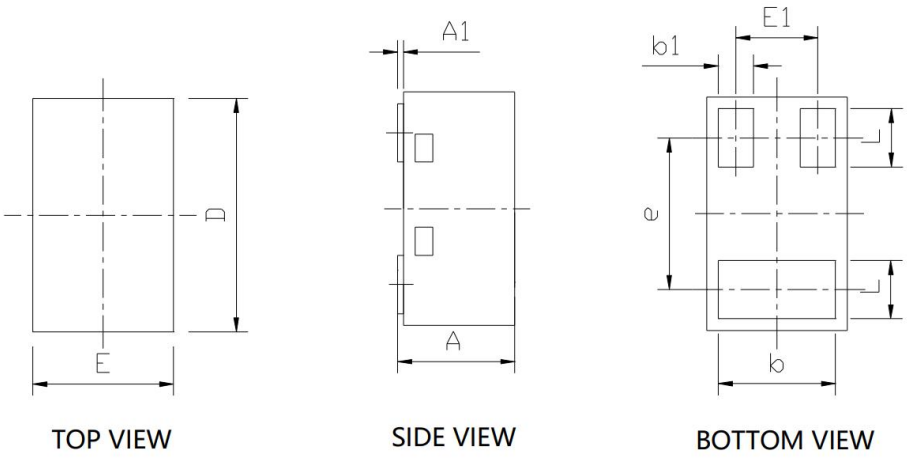


Fig. 6 - $R_{DS(ON)}$—Temperature



DFN1006-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.500	0.016	0.020
A1	0.000	0.050	0.000	0.002
b	0.450	0.550	0.018	0.022
b1	0.100	0.200	0.004	0.008
D	0.900	1.100	0.035	0.043
E	0.550	0.650	0.022	0.026
E1	0.350 BSC		0.014 BSC	
e	0.650 BSC		0.026 BSC	
L	0.200	0.300	0.008	0.012