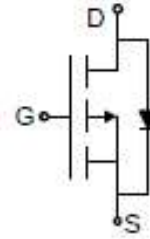


AP20P30Q

P-Channel Power MOSFET

Features

- $V_{DS} = -30V$, $I_D = -20A$
 $R_{DS(ON)} < 13m\Omega @ V_{GS} = -10V$
 $R_{DS(ON)} < 18m\Omega @ V_{GS} = -4.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

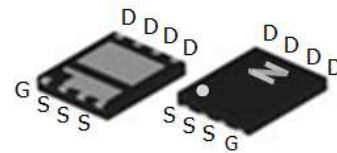


Schematic Diagram

Application

- PWM Applications
- Load Switch

Package



DFN3 x 3

Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-30	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C = 25^\circ C$	-20
		$T_C = 100^\circ C$	-12
I_{DM}	Pulsed Drain Current ^{note1}	-48	A
P_D	Power Dissipation	$T_C = 25^\circ C$	40
$R_{\theta JC}$	Thermal Resistance, Junction to Ambient	3.0	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +175	$^\circ C$

AP20P30Q
P-Channel Power MOSFET
电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V$ $V_{GS}=0V$			-1.0	μA
		$V_{DS}=-24V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.5	-0.8	-1.5	V
On state drain current	$I_{D(ON)}$	$V_{GS}=-10V$ $V_{DS}=-5V$	45			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-10A$		10.5	13	m Ω
		$V_{GS}=-10V$ $I_D=-10A$ $T_J=125^\circ C$		15	18	
		$V_{GS}=-20V$ $I_D=-10A$		10	12	
		$V_{GS}=-4.5V$ $I_D=-10A$		14	18	
Forward Transconductance	g_{FS}	$V_{DS}=-5V$ $I_D=-10A$		20		S
Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$		-0.72	-1.0	V
Maximum Body-Diode Continuous Current	I_S				-4.2	A
Total Gate Charge	Q_g	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-12A$		23.2	45	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			6.4		
Gate Resistance	R_g	$V_{GS}=0V$ $f=1MHz$ $V_{DS}=0V$			3.0	Ω
Input Capacitance	C_{iss}	$V_{GS}=0V$ $f=1MHz$ $V_{DS}=-15V$		1750	2200	pF
Output Capacitance	C_{oss}			215		
Reverse Transfer Capacitance	C_{rss}			180		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		10.4		ns
Turn-on Rise Time	t_r			8		
Turn-off Delay Time	$t_{d(OFF)}$			23.6		
Turn-off Fall Time	t_f			10		

AP20P30Q

P-Channel Power MOSFET

电参数曲线图 / Electrical Characteristic Curve

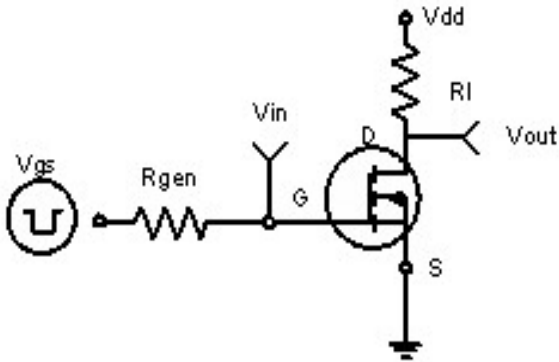


Figure 1: Switching Test Circuit

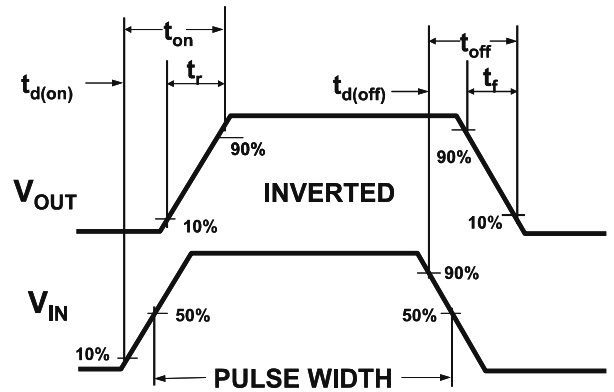


Figure 2: Switching Waveforms

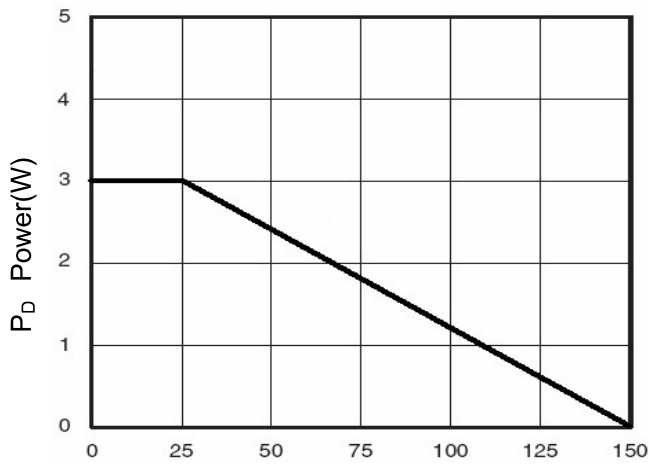


Figure 3 Power Dissipation

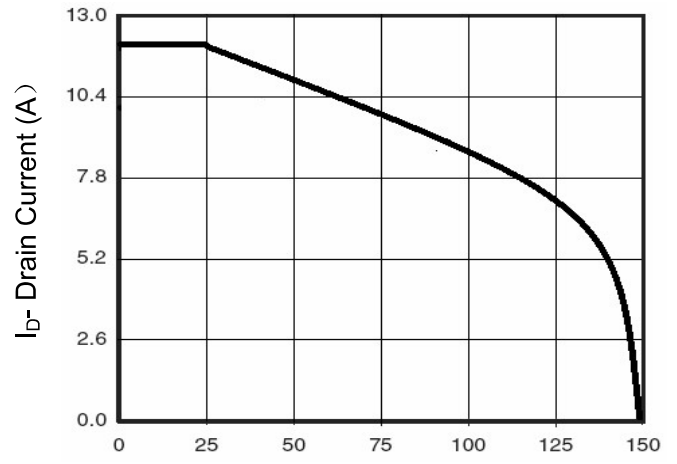


Figure 4 Drain Current

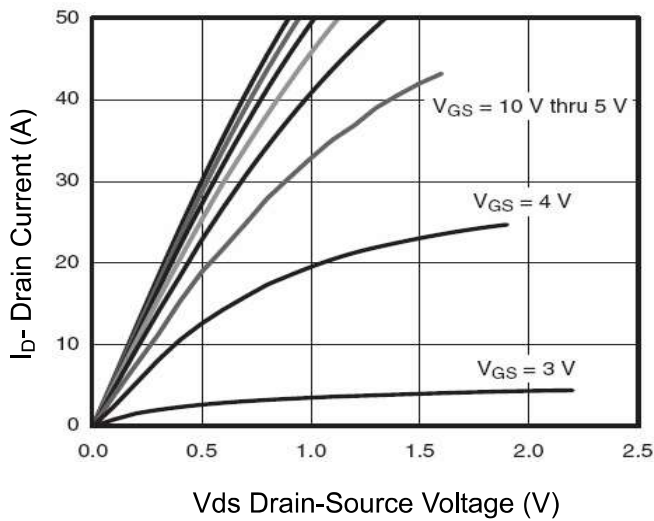


Figure 5 Output Characteristics

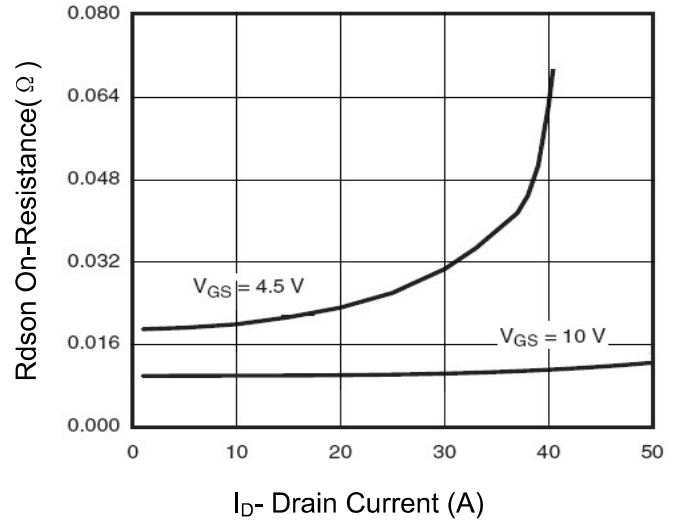


Figure 6 Drain-Source On-Resistance

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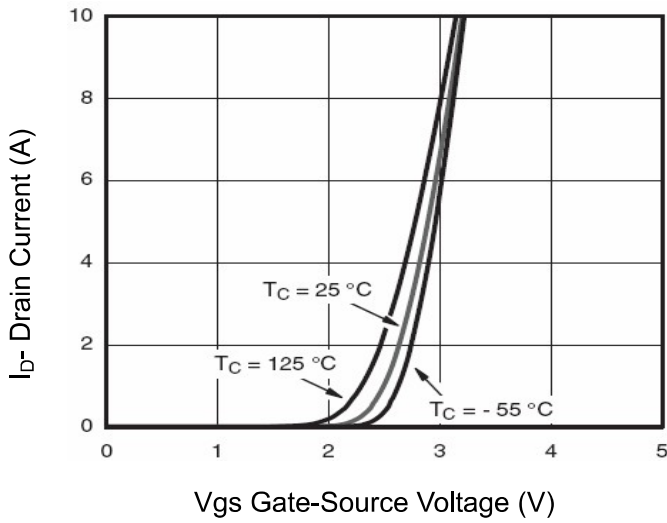


Figure 7 Transfer Characteristics

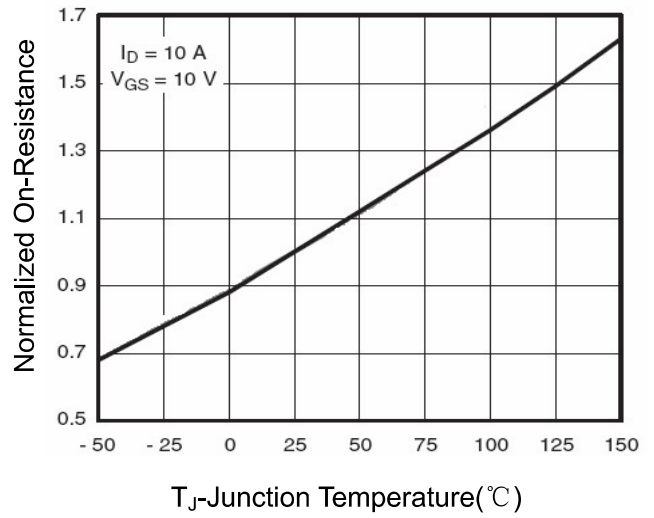


Figure 8 Drain-Source On-Resistance

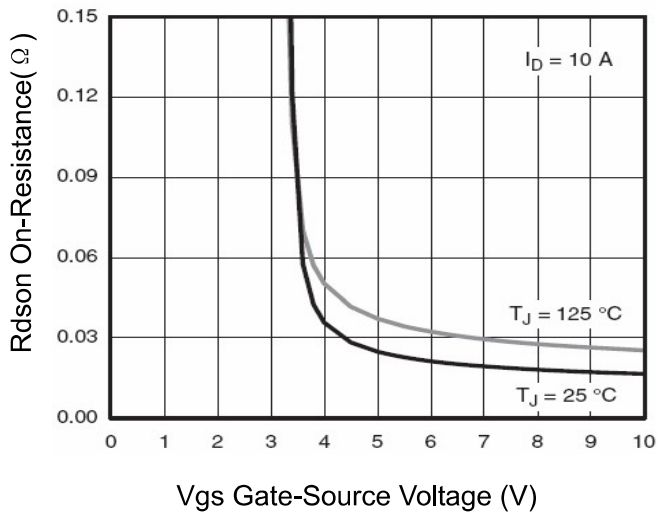


Figure 9 Rdson vs Vgs

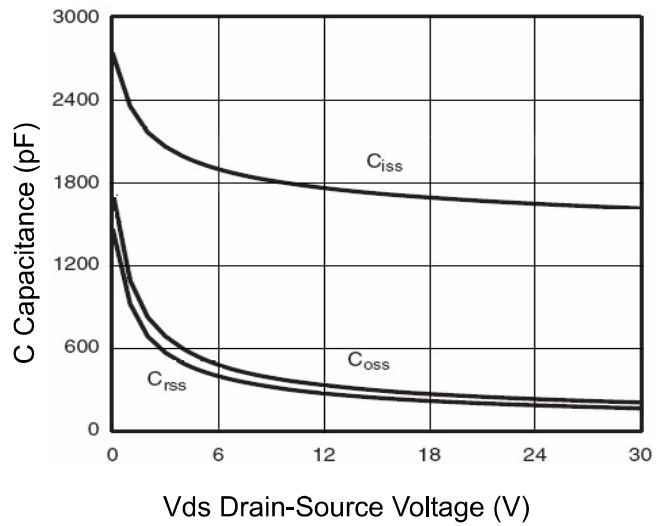


Figure 10 Capacitance vs Vds

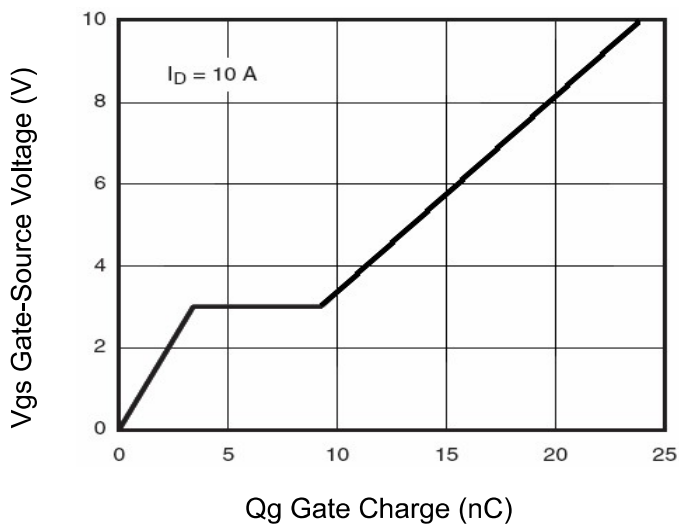


Figure 11 Gate Charge

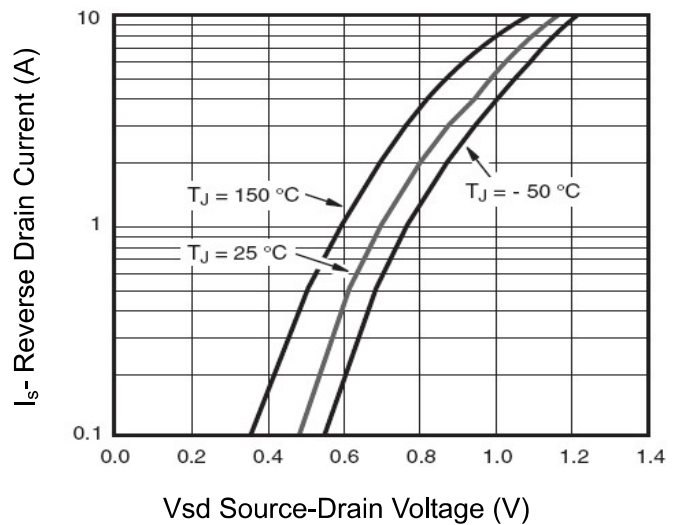
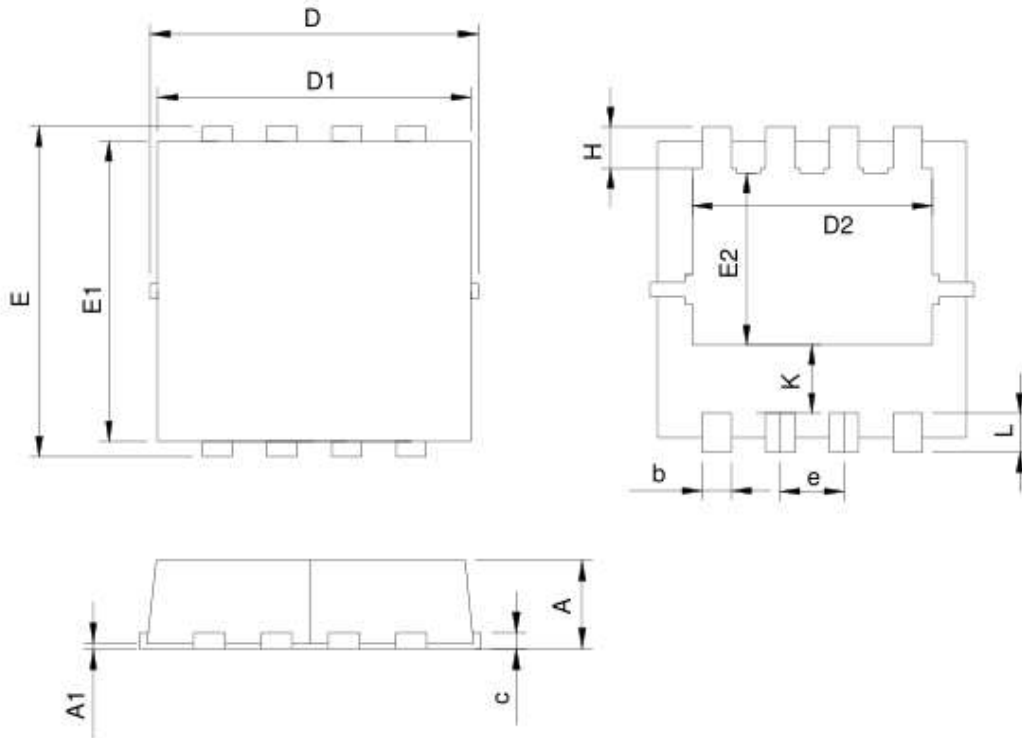


Figure 12 Source- Drain Diode Forward

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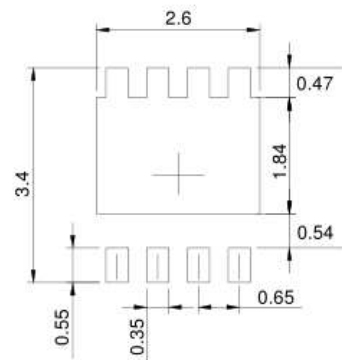
P-Channel Power MOSFET

•Dimensions(DFN3×3)



Symbol	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



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