AS04P06S

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-55V	82mΩ@-10V	-4A

Feature

- Fully characterized avalanche voltage and current
- High Density Cell Design For Ultra Low Rds(on)
- Excellent package for good heat dissipation

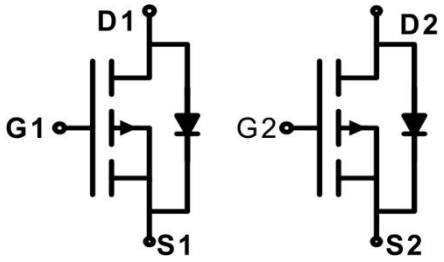
Application

- Hard switched and high frequency circuits
- Power switching applications
- DC-DC converter

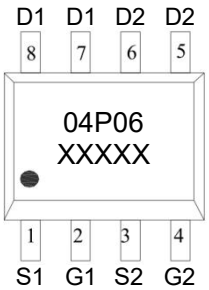
Package

SOP-8

Circuit diagram



Marking



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P-Channel Enhancement Mode MOSFET

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-55	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-4	A
Continuous Drain Current (100℃)	I_D (100℃)	-2.8	A
Pulsed Drain Current	I_{DM}	-25	A
Power Dissipation	P_D	3	W
Thermal Resistance from Junction to Ambient[4]	$R_{\theta JA}$	42	℃/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	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-55			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-55V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.5	-2.6	-3.5	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.0A		66	82	mΩ
Forward transconductance	g_{FS}	V_{DS} =-15V, I_D =-4.0A	16			S
Dynamic characteristics[2]						
Input Capacitance	C_{iss}	V_{DS} =-25V,V_{GS} =0V,f =1MHz		1450		pF
Output Capacitance	C_{oss}			145		
Reverse Transfer Capacitance	C_{rss}			110		
Total Gate Charge	Q_g	V_{DS} =-30V,V_{GS} =-10V, I_D =-4.0A		26		nC
Gate-Source Charge	Q_{gs}			4.5		
Gate-Drain Charge	Q_{gd}			7		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-30V,V_{GS}=-10V, R_L =30Ω,R_{GEN}=6Ω		8		nS
Turn-on rise time	t_r			9		
Turn-off delay time	$t_{d(off)}$			65		
Turn-off fall time	t_f			30		
Source-Drain Diode characteristics						
Diode Forward Current[4]	I_S				-4.0	A
Diode Forward voltage[1]	V_{DS}	V_{GS} =0V, I_S=-4.0A			-1.2	V

Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
2) Guaranteed by design, not subject to production testing.
3) Repetitive Rating: Pulse width limited by maximum junction temperature.
4) Surface Mounted on FR4 Board, t ≤ 10 sec.

Typical Characteristics

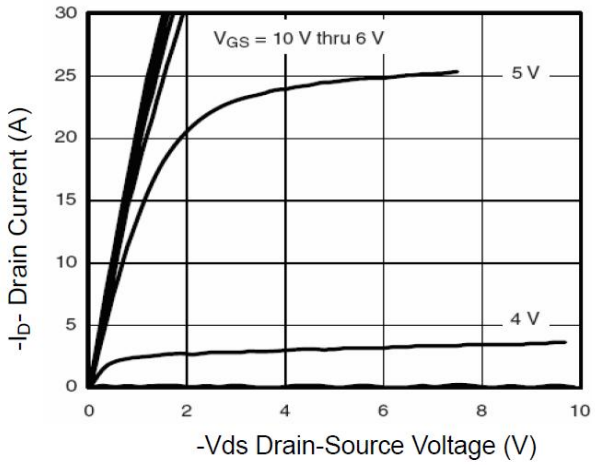


Figure 1 Output Characteristics

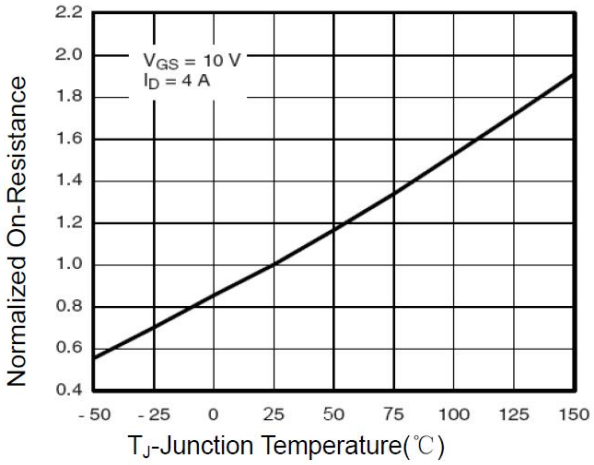


Figure 2 Rdson-Junction Temperature

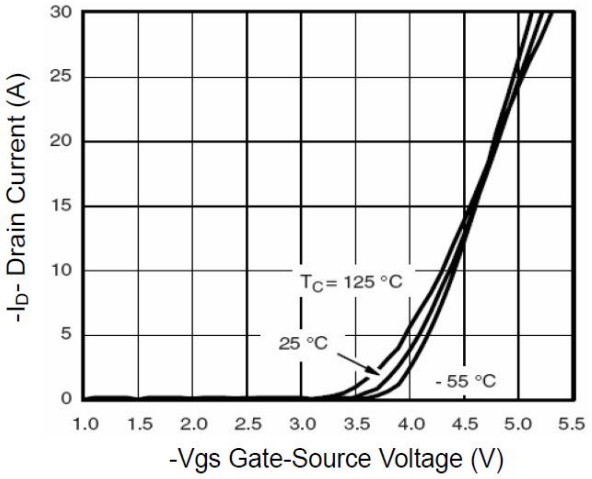


Figure 3 Transfer Characteristics

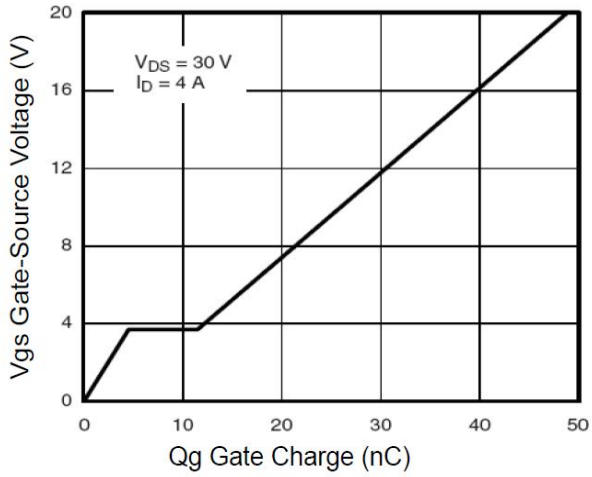


Figure 4 Gate Charge

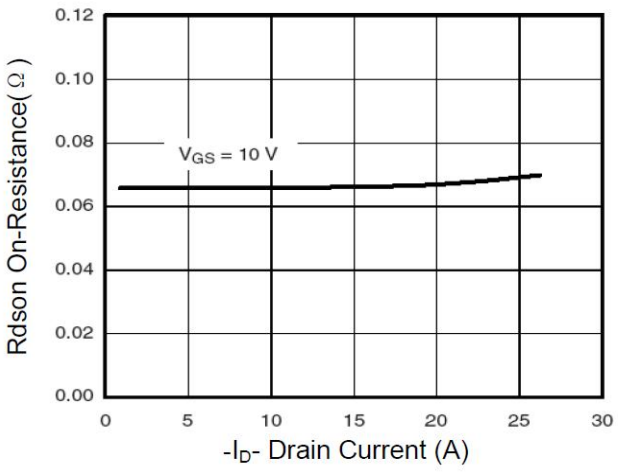


Figure 5 Rdson- Drain Current

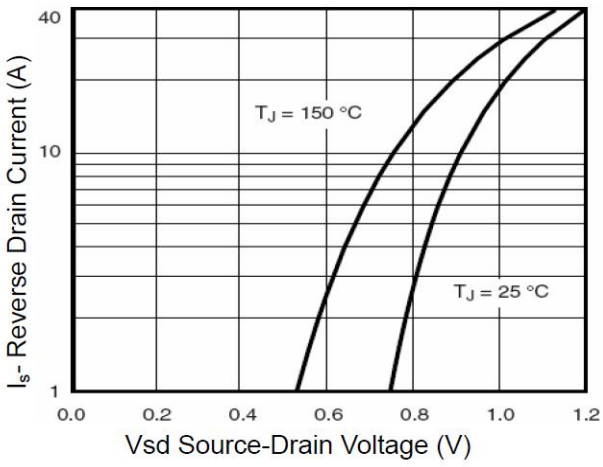


Figure 6 Source- Drain Diode Forward

Typical Characteristics

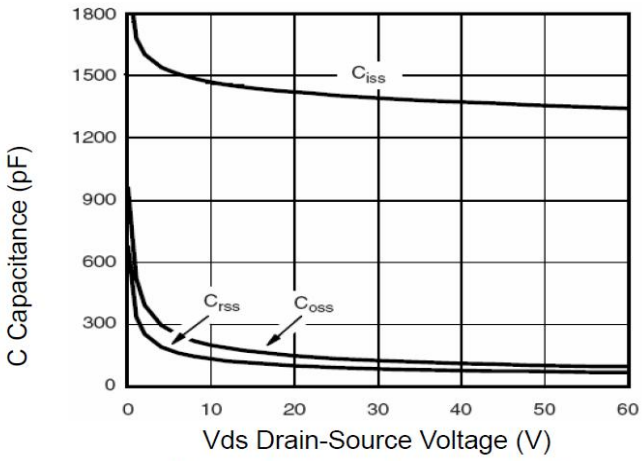


Figure 7 Capacitance vs Vds

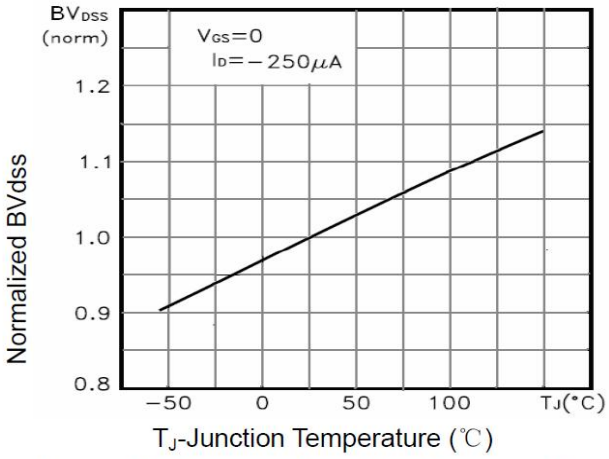


Figure 8 BV_{DSS} vs Junction Temperature

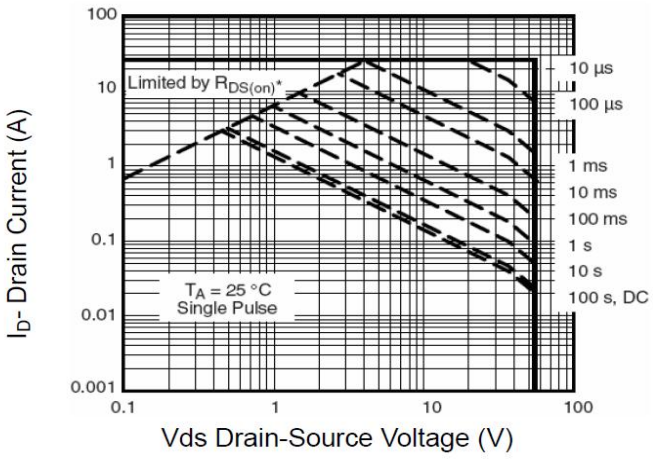


Figure 9 Safe Operation Area

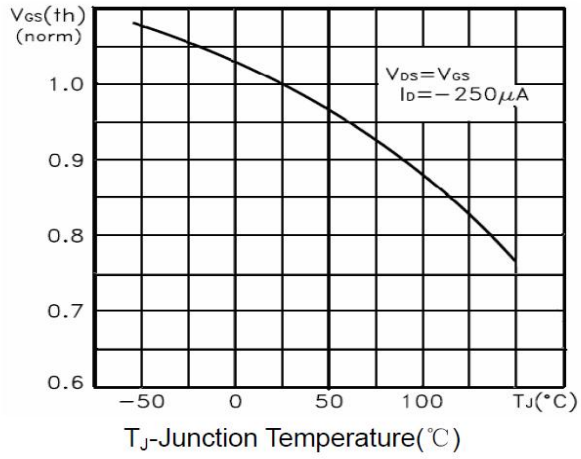


Figure 10 $V_{GS(th)}$ vs Junction Temperature

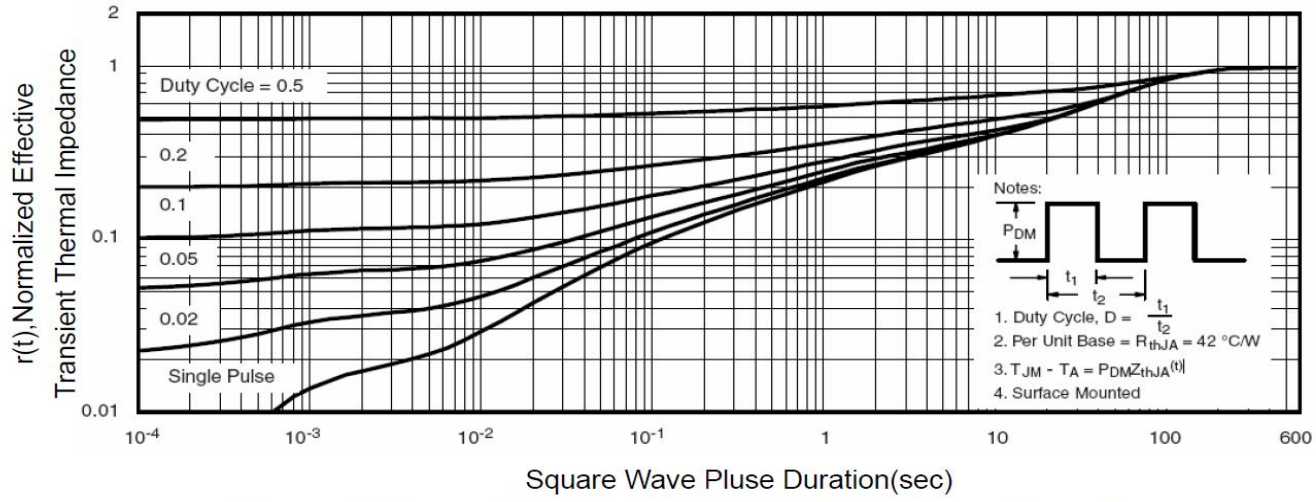
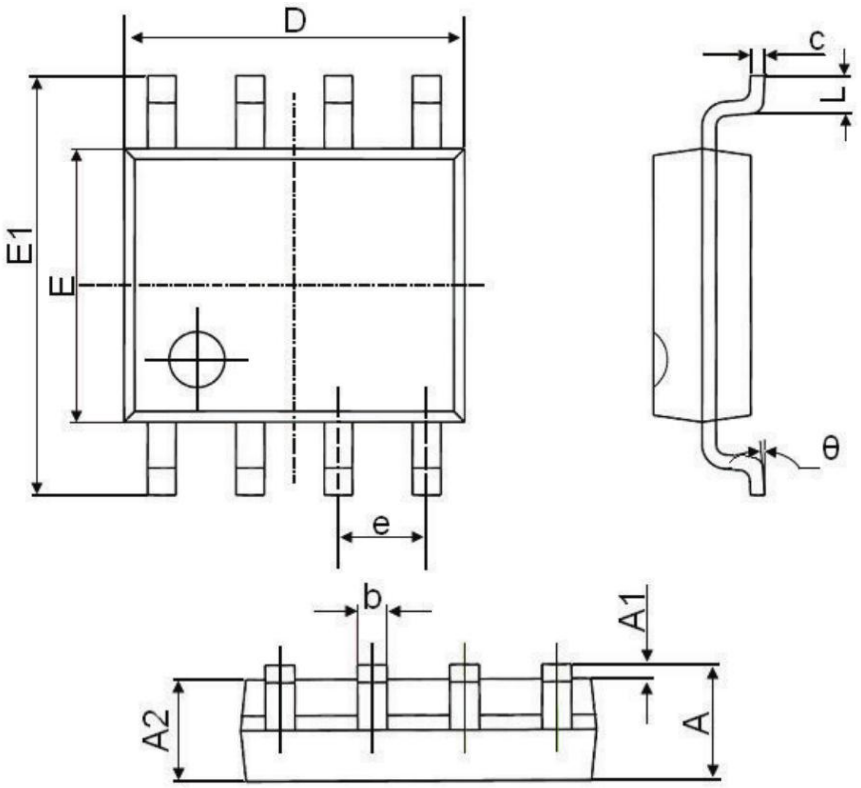


Figure 11 Normalized Maximum Transient Thermal Impedance

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°