AP001SN600MSG

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	11Ω@10V	1A

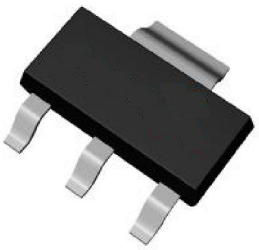
Feature

- Self-aligned planar technology
- Low conduction losses

Application

- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Package



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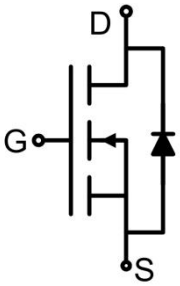
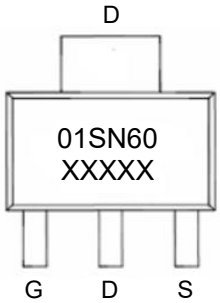
Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	1	A
Continuous Drain Current (T_C=100℃)	I_D	0.6	A
Pulsed Drain Current[1)]	I_{DM}	4	A
Single Pulse Avalanche Energy[2)]	E_{AS}	14	mJ
Power Dissipation (T_L=25℃)	P_D	20	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	6.25	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25 °C, 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	600			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =600V, V_{GS} =0V, T_J =25℃			25	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =0.5A		8.5	11	Ω
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		150		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			5.4		
Total Gate Charge	Q_g	V_{DS} =480V, V_{GS} =10V, I_D =1A		4.8		nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			2.7		
Turn-off delay time	$t_{d(off)}$	V_{DS} =300V, I_D =1A, R_G =25Ω		13		nS
Source-Drain Diode characteristics						
Diode Forward Current	I_S				1	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =0.5A, T_J =25℃			1.4	V
Reverse Recovery Time	T_{rr}	I_F =1A, di/dt =100A/us T_J =25℃		190		nS
Reverse Recovery Charge	Q_{rr}			0.53		μC

Notes:

1) The data tested by pulsed , pulse width ≤300us , duty cycle ≤2% .

2) The test condition is V_{DD} =50V, L=30mH, R_G =25Ω, I_{AS} =1A .

3) Guaranteed by design, not subject to production.

Typical Characteristics

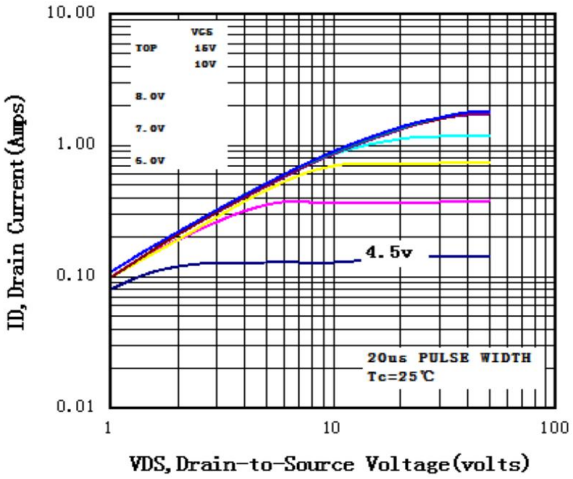


Fig1 Typical Output Characteristics, Tc=25℃

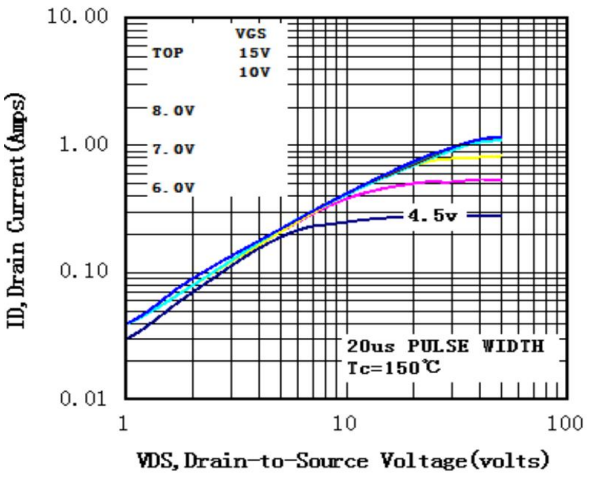


Fig2 Typical Output Characteristics, Tc=150℃

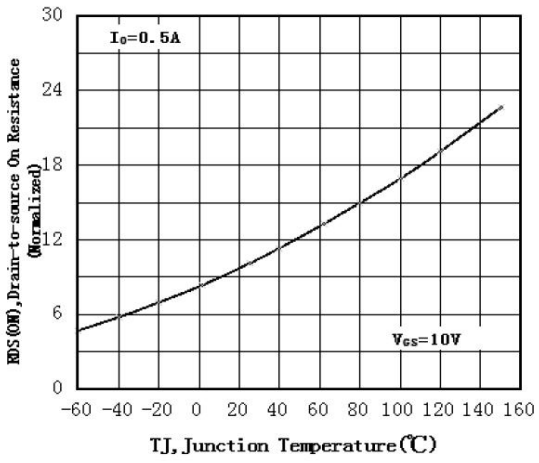


Fig3 Normalized On-Resistance Vs.Temperature

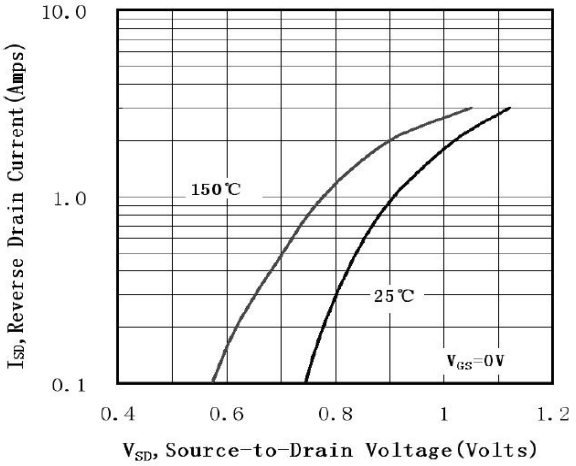


Fig4 Typical Source-Drain Diode Forward Voltage

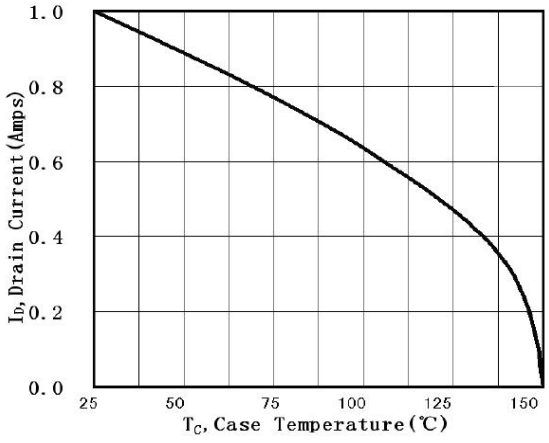


Fig5 Maximum Drain Current Vs. Case Temperature

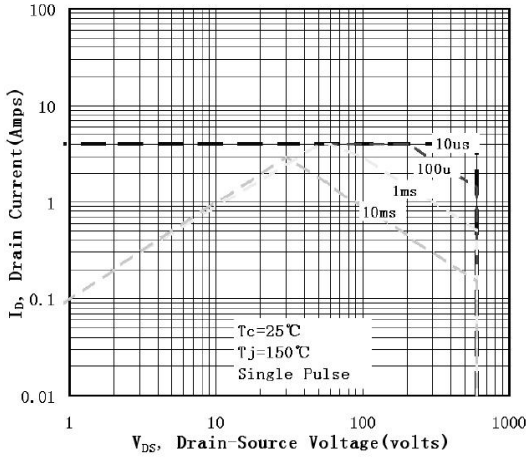


Fig 6 Maximum Safe Operating Area

Typical Characteristics

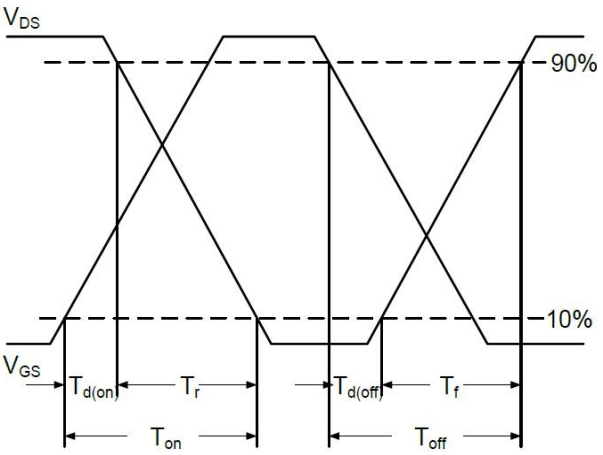


Fig.7 Switching Time Waveform

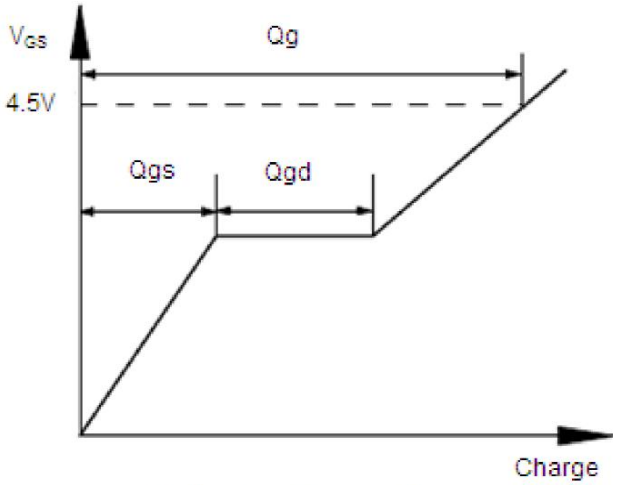
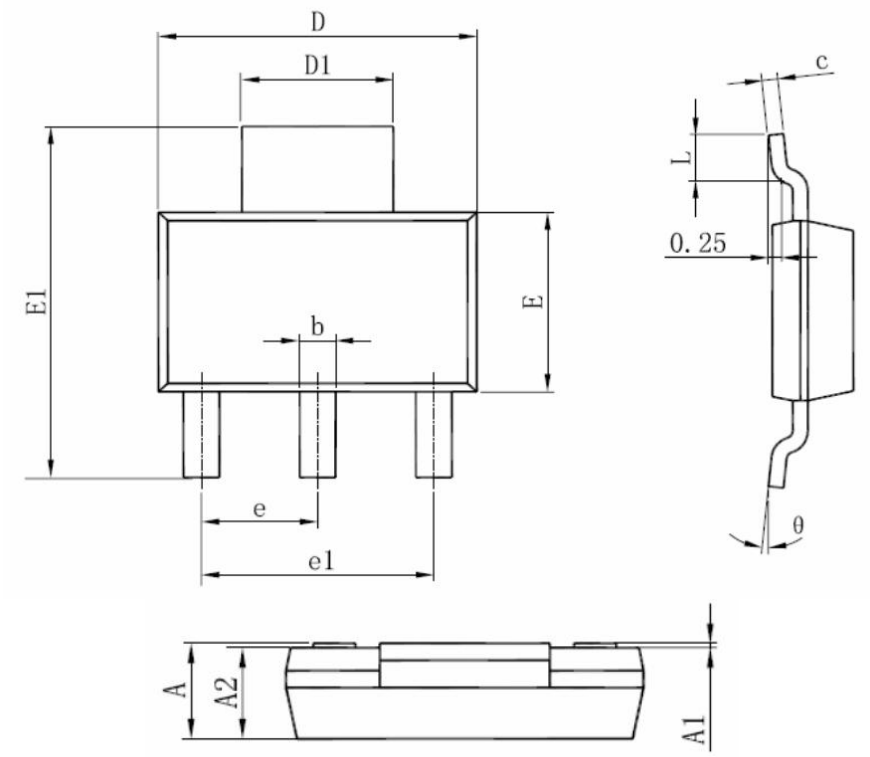


Fig.8 Gate Charge Waveform

SOT-223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.520	1.800	0.060	0.071
A1	0.000	0.120	0.000	0.005
A2	1.450	1.750	0.057	0.069
b	0.600	0.820	0.024	0.032
c	0.250 BSC.		0.010 BSC.	
D	6.480	6.580	0.255	0.259
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.800	7.200	0.268	0.283
e	2.300 BSC.		0.091 BSC.	
e1	4.600 BSC.		0.181	
L	0.800	1.200	0.031	0.047
θ	0°	10°	0°	10°