AP024SN600MTF

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	0.35Ω@10V	24A

Feature

- Self-aligned planar Technology
- Low conduction loss

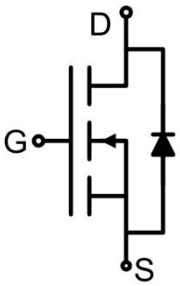
Application

- Uninterruptible power supply (UPS)
- Power factor correction (PFC)

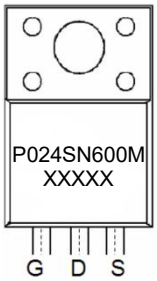
Package

ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	24	A
Pulsed Drain Current[1)]	I_{DM}	100	A
Power Dissipation[2)]	P_D	189	W
Single Pulse Avalanche Energy[3)]	E_{AS}	2880	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	0.66	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=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			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V, V_{DS} =0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =12.5A		0.26	0.35	Ω
Dynamic characteristics[4)]						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		4008		pF
Output Capacitance	C_{oss}			423		
Reverse Transfer Capacitance	C_{rss}			62		
Total Gate Charge	Q_g	V_{DS} =480V,V_{GS} =10V,I_D =24A		122		nC
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			61		
Turn-on delay time	$t_{d(on)}$	V_{DD}=300V,I_D =24A, R_G=25Ω		67		nS
Turn-on rise time	t_r			53		
Turn-off delay time	$t_{d(off)}$			522		
Turn-off fall time	t_f			94		
Source-Drain Diode characteristics						
Diode Forward Current	I_S	T_C=25℃			24	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_{SD}=12.5A			1.4	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, I_S =24A di_F/dt = 100A/μs		800		nS
Reverse Recovery Charge	Q_{rr}			8.46		μC

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2) The power dissipation is limited by 150℃ junction temperature.

3) The EAS data shows Max. rating .L=4.1mH, I_{AS}=24A, V_{DD} =50V, R_G =25Ω, Starting T_J =25°C.

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

Typical Characteristics

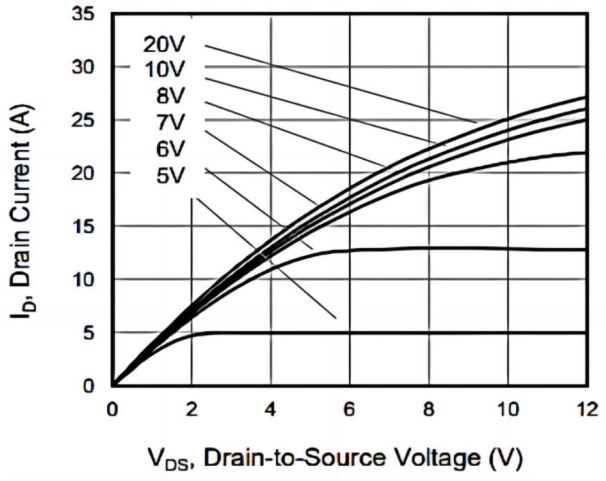


Figure 1. Output Characteristics (TJ = 25°C)

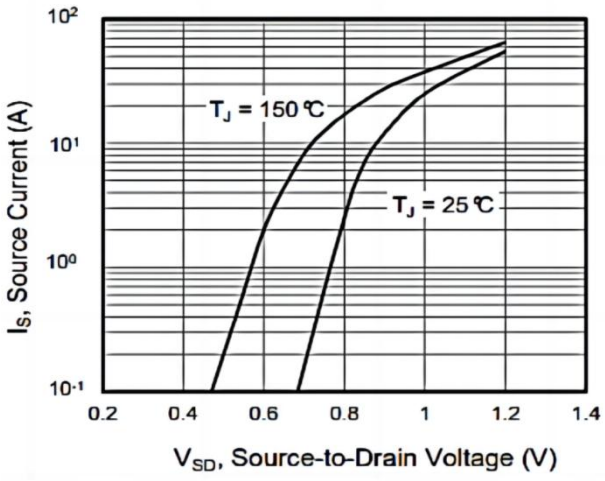


Figure 2. Body Diode Forward Voltage

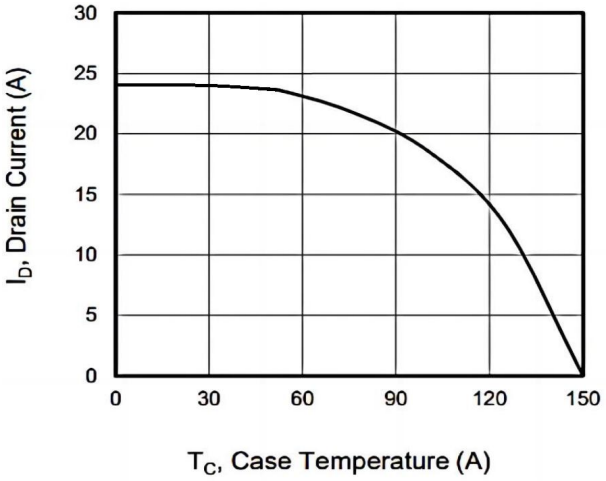


Figure 3. Drain Current vs. Temperature

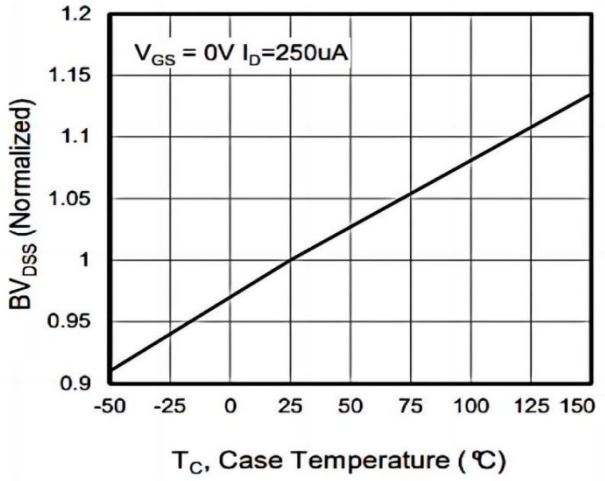


Figure 4. BVDSS Variation vs. Temperature

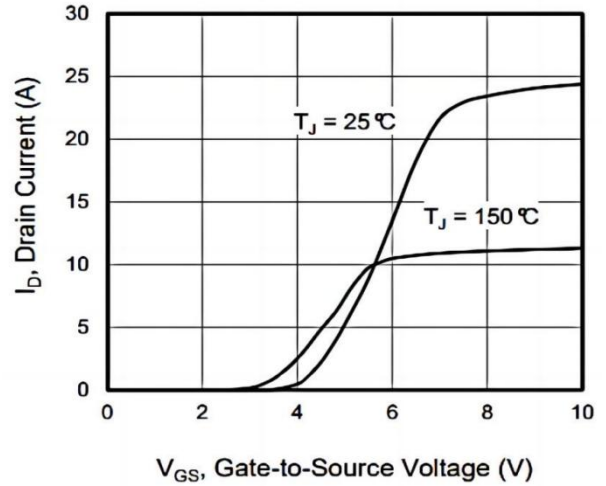


Figure 5. Transfer Characteristics

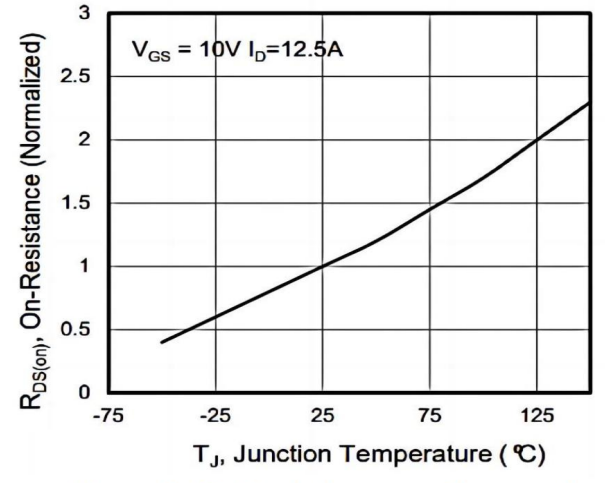


Figure 6. On-Resistance vs. Temperature

Typical Characteristics

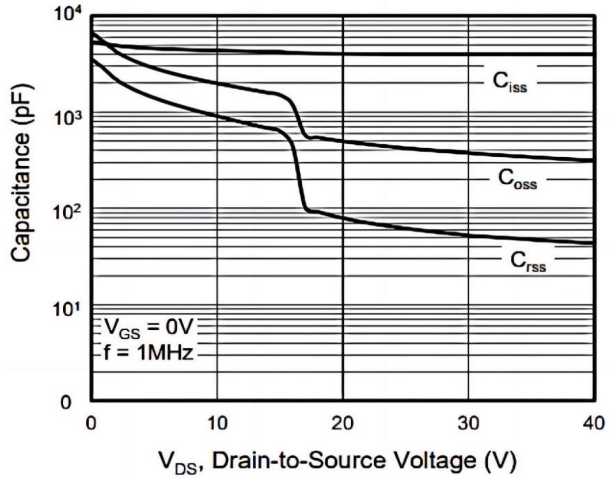


Figure 7. Capacitance

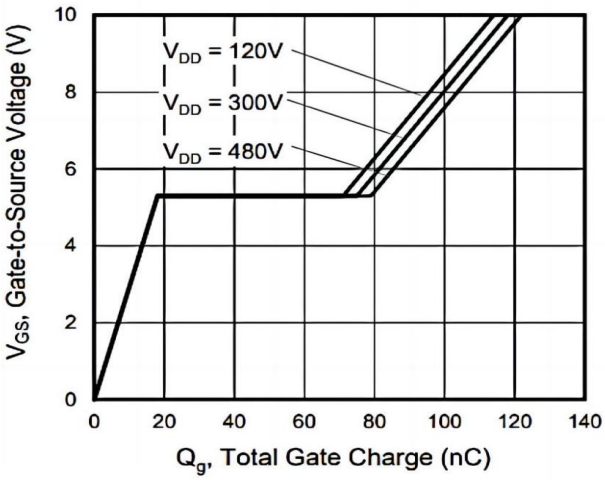


Figure 8. Gate Charge

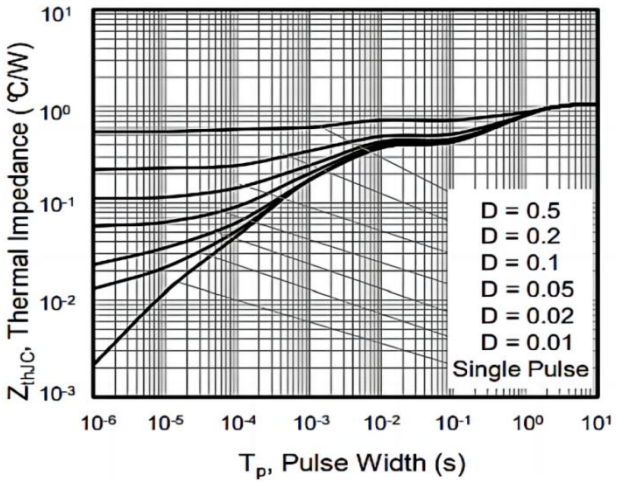
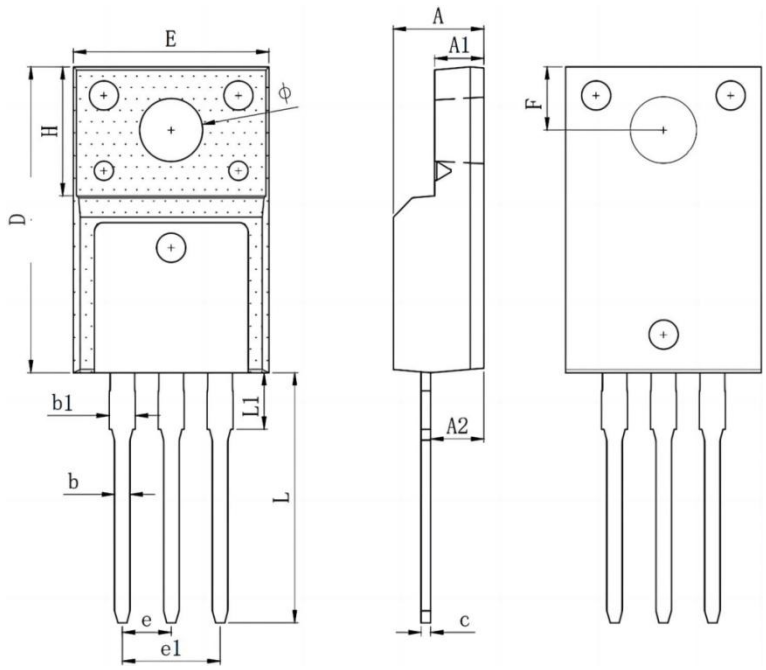


Figure 9. Transient Thermal Impedance

ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.500	5.000	0.177	0.197
A1	2.340	2.840	0.092	0.112
A2	2.400	3.400	0.094	0.134
b	0.700	0.950	0.028	0.037
b1	1.050	1.550	0.041	0.061
c	0.400	0.650	0.016	0.026
D	15.570	16.170	0.613	0.637
H	6.700 REF.		0.264 REF.	
E	9.860	10.460	0.388	0.412
e	2.540 BSC.		0.100 BSC.	
e1	5.080 BSC.		0.200 BSC.	
L	12.650	13.300	0.498	0.524
L1	2.780	3.380	0.109	0.133
F	3.150	3.550	0.124	0.140
ϕ	3.000	3.650	0.118	0.144