

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
800V	320mΩ@10V	17A

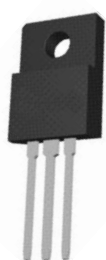
Feature

- New technology for high voltage device
- Low on-resistance and low conduction losses
- Ultra Low Gate Charge cause lower driving requirements

Application

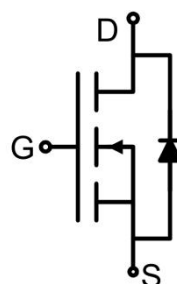
- Power factor correction (PFC)
- Switched mode power supplies (SMPS)
- Uninterruptible power supply (UPS)

Package

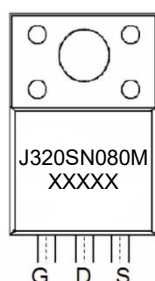


ITO-220AB

Circuit diagram



Marking



Absolute maximum ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	800	V
Gate-Source Voltage (V _{DS} =0V) AC (f>1 Hz)	V _{GS}	±30	V
Continuous Drain Current	I _D	17	A
Continuous Drain Current (T _C =100°C)	I _D (100°C)	11	A
Pulsed Drain Current ¹⁾	I _{DM}	68	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	324	mJ
Power Dissipation	P _D	35	W
Thermal Resistance Junction to Case	R _{θJC}	3.57	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

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	800			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =800V, V _{GS} =0V, T _C =25°C			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3	3.5	4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =8.5A		260	320	mΩ
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		2060		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			0.5		
Total Gate Charge	Q _g	V _{DS} =480V, V _{GS} =10V I _D =17A		36		nC
Gate-Source Charge	Q _{gs}			12.5		
Gate-Drain Charge	Q _{gd}			11		
Turn-on delay time	t _{d(on)}	V _{DS} =480V, V _{GS} =10V I _D =8.5A, R _G =2.3Ω		14		nS
Turn-on rise time	t _r			12		
Turn-off delay time	t _{d(off)}			65		
Turn-off fall time	t _f			11		
Source-Drain Diode characteristics						
Source-drain current	I _S	T _C =25°C			17	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =17A, T _J =25°C			1.2	V
Reverse Recovery Time	T _{rr}	I _F =8.5A, di/dt =100A/us T _J =25°C		300		nS
Reverse Recovery Charge	Q _{rr}			3.1		μC
Peak Reverse Recovery Current	I _{rrm}			19		A

Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature.

2) T_J=25°C, V_{DD} =50V, V_G=10V, R_G=25Ω.

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

Typical Characteristics

Figure1. Safe operating area

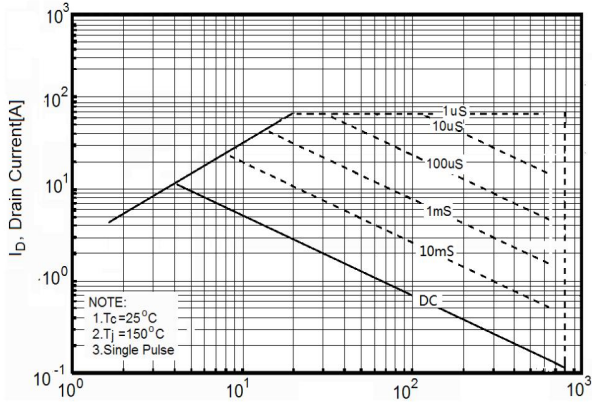


Figure2. Source-Drain Diode Forward Voltage

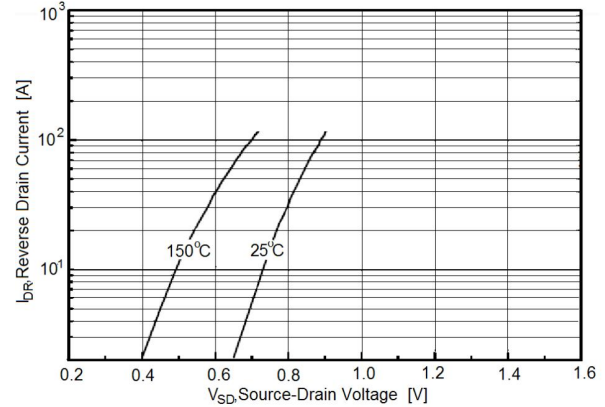


Figure3. Output characteristics

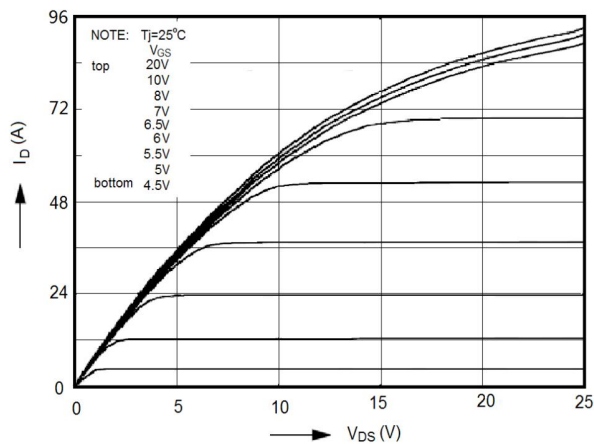


Figure4. Transfer characteristics

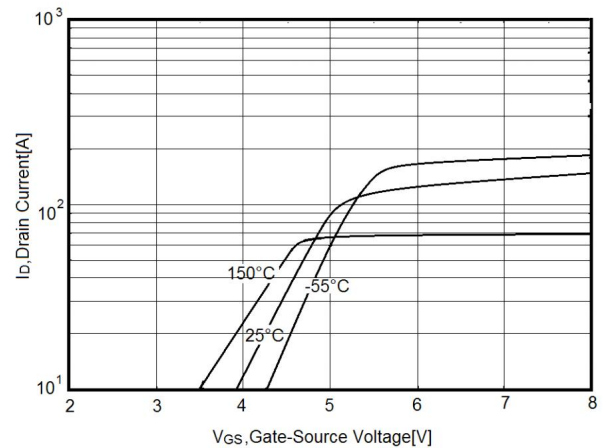


Figure5. Static drain-source on resistance

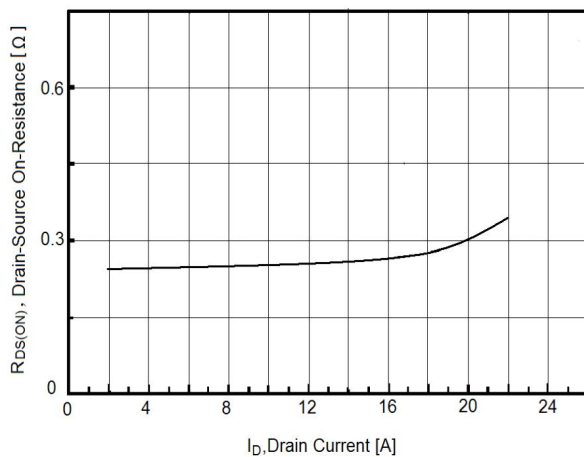
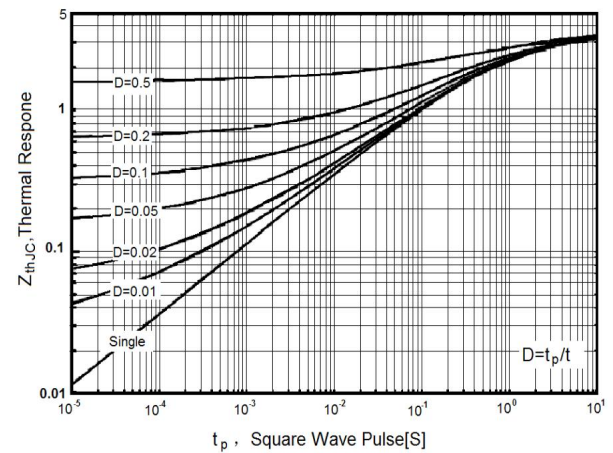


Figure6. Transient Thermal Impedance



Typical Characteristics

Figure7. $R_{DS(ON)}$ vs Junction Temperature

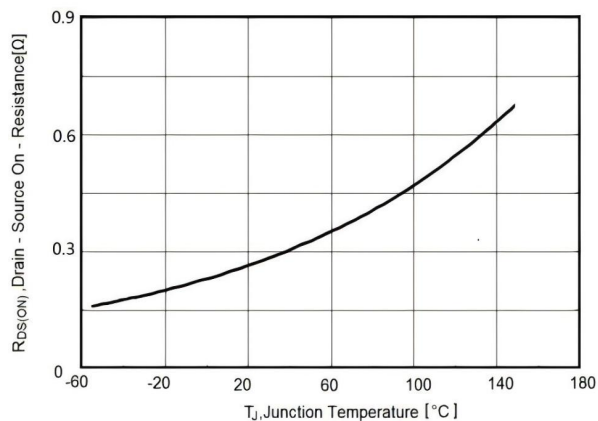


Figure8. BV_{DSS} vs Junction Temperature

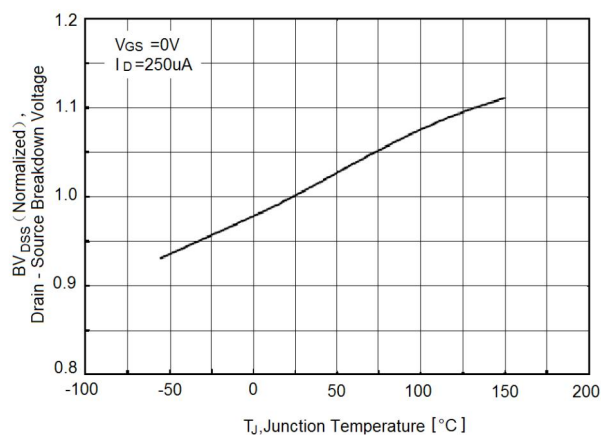


Figure9. Maximum I_D vs Junction Temperature

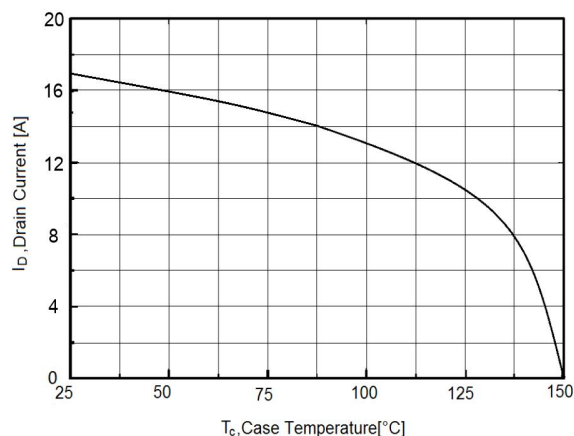


Figure10. Gate charge waveforms

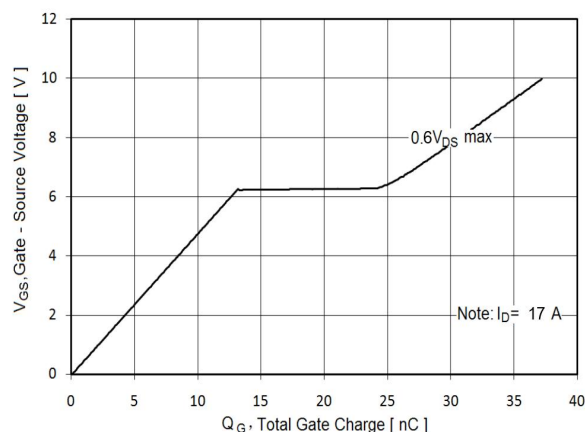
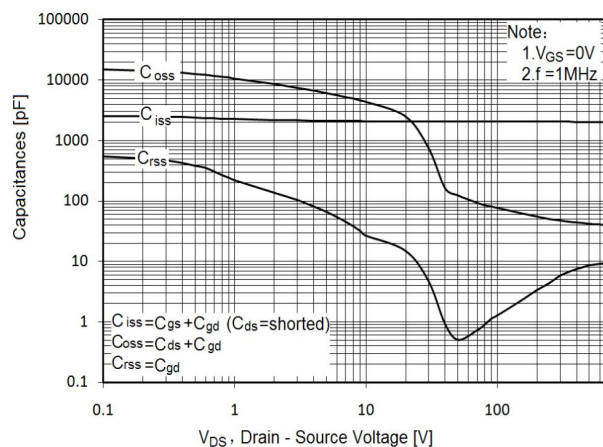
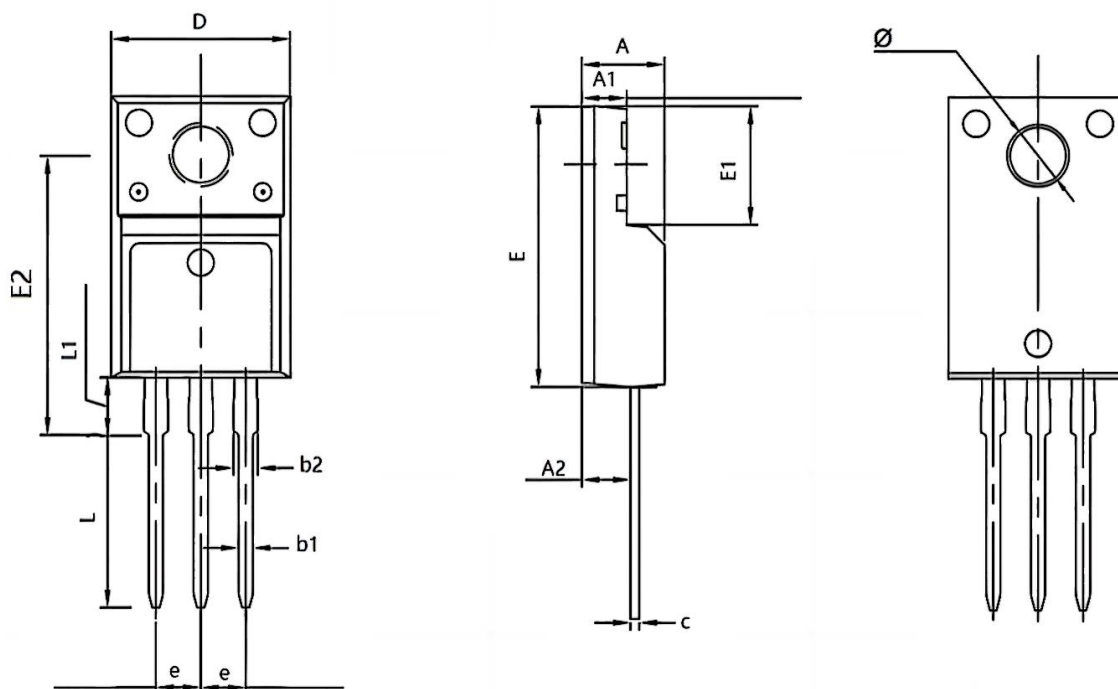


Figure11. Capacitance



ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.500	4.900	0.177	0.193
A1	2.340	2.740	0.092	0.108
A2	2.150	2.960	0.085	0.117
b1	0.700	0.900	0.028	0.035
b2	1.180	1.580	0.046	0.062
c	0.400	0.600	0.016	0.024
D	9.860	10.460	0.388	0.412
E	15.670	16.070	0.617	0.633
E1	6.480	6.900	0.255	0.272
E2	15.500	16.100	0.610	0.634
e	2.540 TYP		0.100 TYP	
φ	3.080	3.500	0.121	0.138
L	12.640	13.240	0.498	0.521
L1	3.030	3.430	0.119	0.135