

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
700V	360mΩ@10V	15A

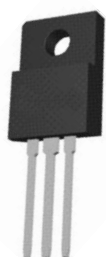
Feature

- Low on-resistance
- Low gate charge

Application

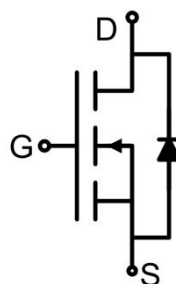
- Uninterruptible power supply (UPS)
- Power factor correction (PFC)

Package

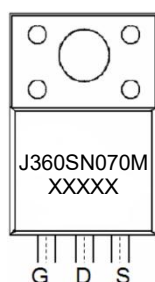


ITO-220AB

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}	700	V
Gate-Source Voltage	V _{GS}	±30	V
Continuous Drain Current	I _D	15	A
Pulsed Drain Current ¹⁾	I _{DM}	30	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	250	mJ
Power Dissipation ³⁾	P _D	25.5	W
Thermal Resistance Junction to Case	R _{θJC}	4.9	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

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	700			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	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	2.5	3.5	4.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =5A		320	360	mΩ
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		571		pF
Output Capacitance	C _{oss}			45		
Reverse Transfer Capacitance	C _{rss}			5.46		
Total Gate Charge	Q _g	V _{DS} =400V, V _{GS} =10V I _D =5.5A		17.6		nC
Gate-Source Charge	Q _{gs}			4.6		
Gate-Drain Charge	Q _{gd}			8.4		
Turn-on delay time	t _{d(on)}	V _{DS} =400V, V _{GS} =10V I _D =5.5A, R _G =25Ω		26		nS
Turn-on rise time	t _r			44		
Turn-off delay time	t _{d(off)}			64.6		
Turn-off fall time	t _f			24		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				15	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =11A			1.3	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =5.5A di/dt =-100A/μs		238		nS
Reverse Recovery Charge	Q _{rr}			2.3		μC
Peak reverse recovery current	I _{rrm}			21.7		A

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The EAS data shows Max. rating : L=0.5mH, I_{AS}=4A, V_{DS}=50V, R_G=25Ω.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

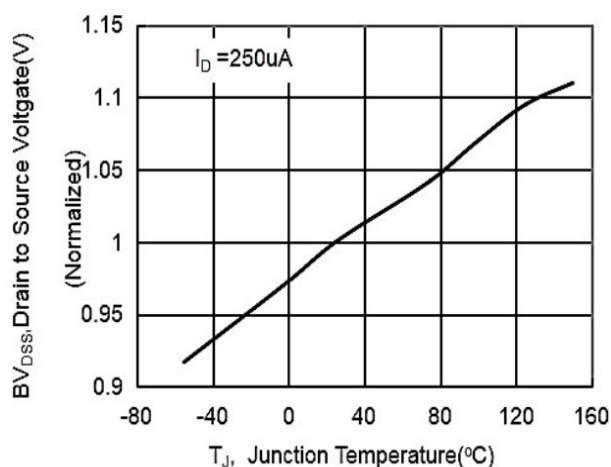


Figure1:BVDSS vs Junction Temperature

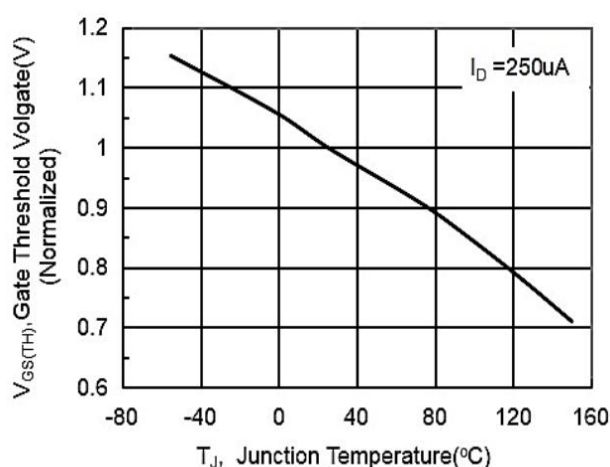


Figure2: VGS(TH) vs Junction Temperature

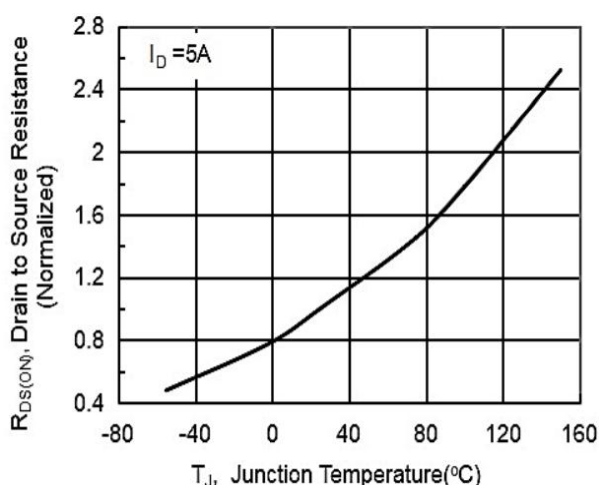


Figure3:RDS(ON) vs Junction Temperature

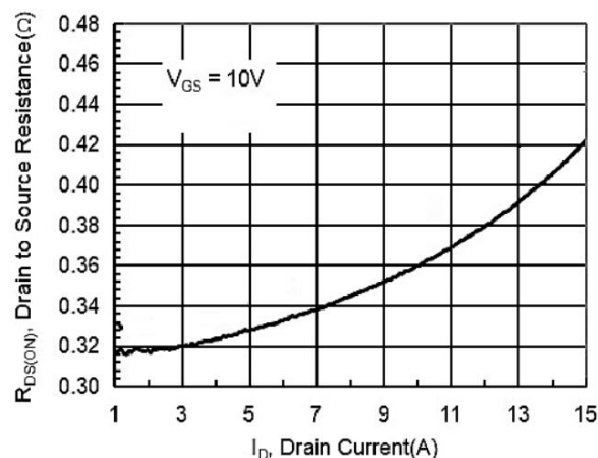


Figure4:Drain-source on-state resistance

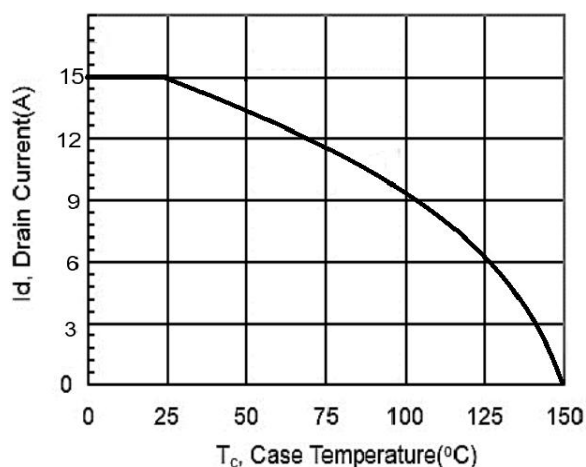


Figure5:Drain current

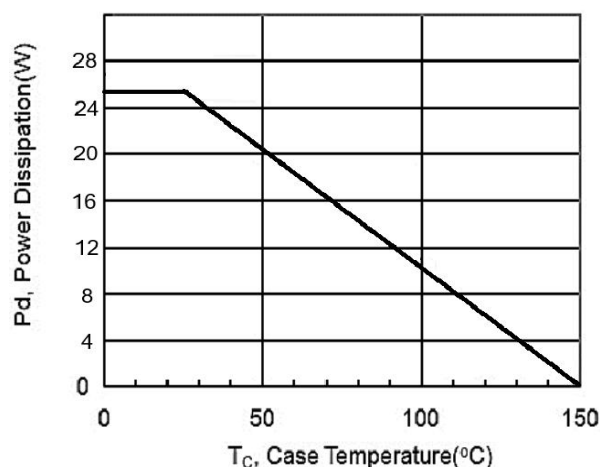


Figure6 :Power dissipation

Typical Characteristics

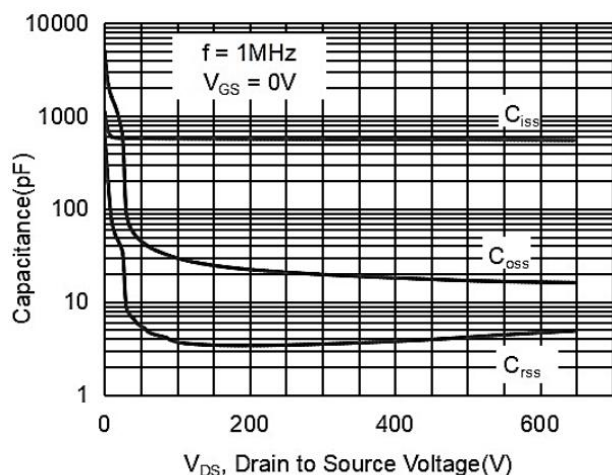


Figure7:Capacitance Characteristics

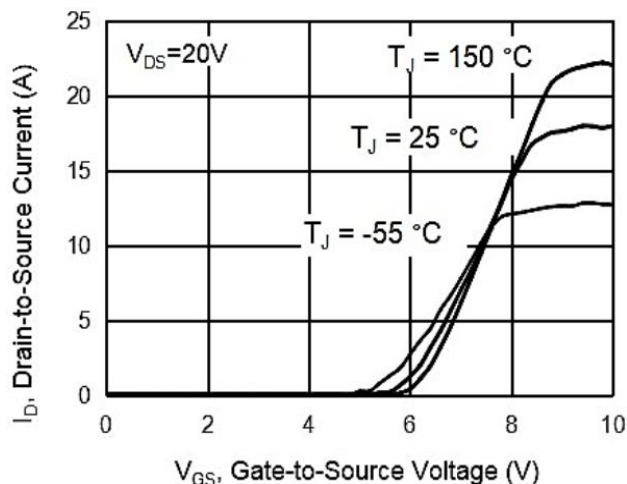


Figure8: Transfer characteristics

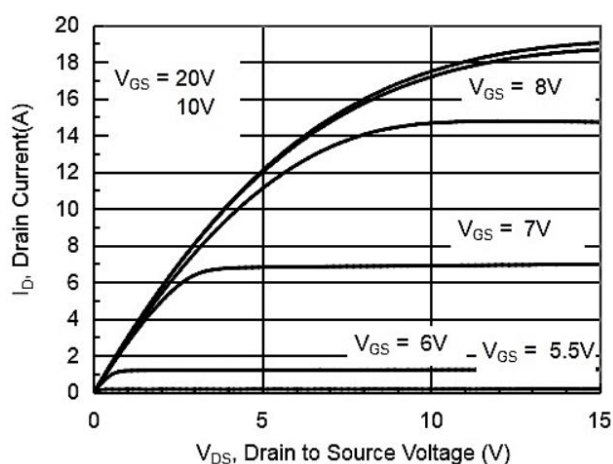


Figure9:Output characteristic

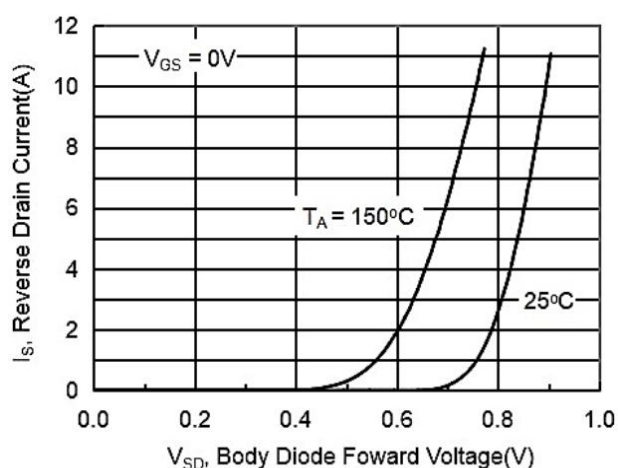


Figure10: Forward characteristics of reverse diode

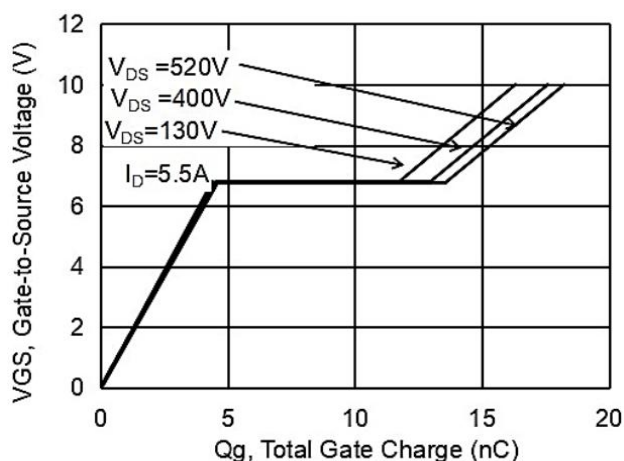


Figure11:Gate charge characteristics

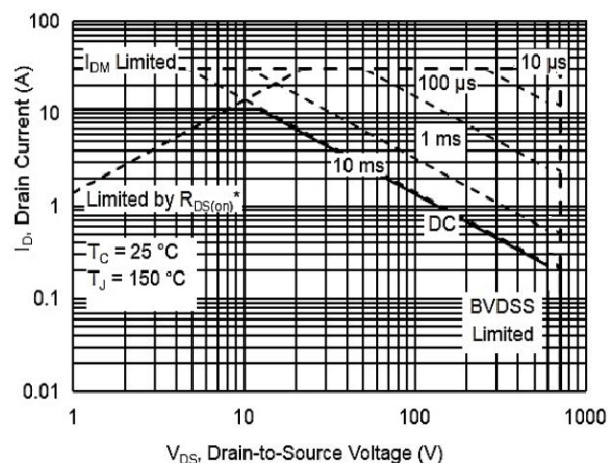


Figure12:Safe operating area

Typical Characteristics

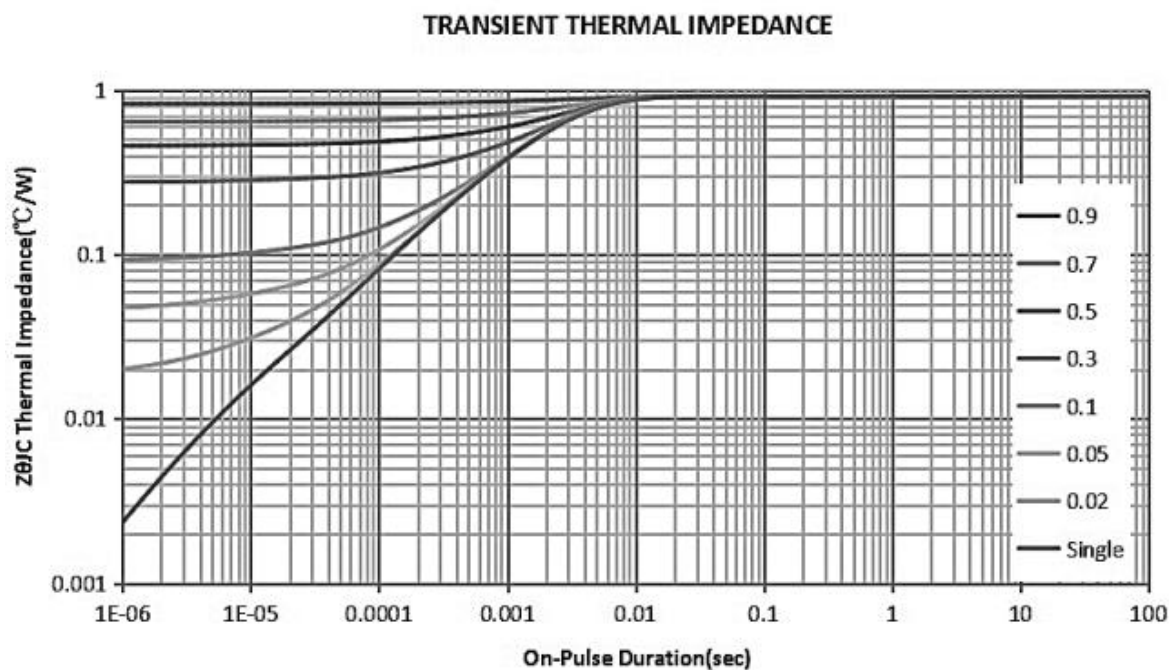
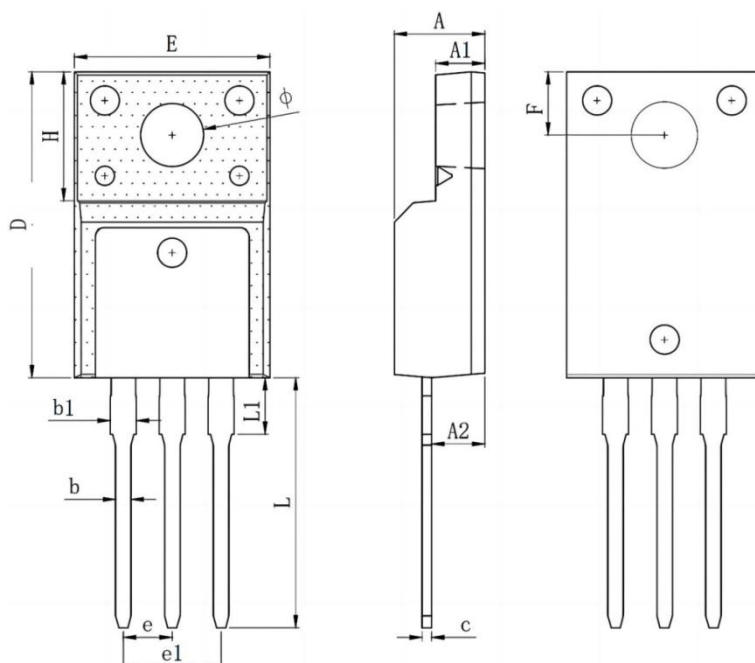


Figure13:Transient thermal impedance

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