

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
500V	$0.72\Omega @ 10V$	9A

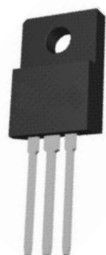
Feature

- Self-aligned planar Technology
- Low conduction loss

Application

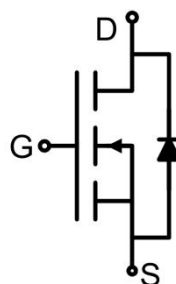
- Uninterruptible power supply (UPS)
- Power factor correction (PFC)

Package

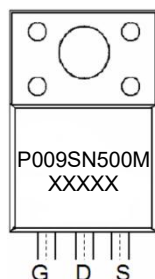


ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	500	V
Gate-Source Voltage	V _{GS}	±30	V
Continuous Drain Current	I _D	9	A
Pulsed Drain Current ¹⁾	I _{DM}	36	A
Power Dissipation ²⁾	P _D	178	W
Single Pulse Avalanche Energy ³⁾	E _{AS}	347	mJ
Thermal Resistance, Junction-to-Case	R _{θJC}	0.7	°C/W
Junction Temperature	T _J	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	500			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =500V, 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 =4.5A		0.63	0.72	Ω
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		1100		pF
Output Capacitance	C _{oss}			106		
Reverse Transfer Capacitance	C _{rss}			32		
Total Gate Charge	Q _g	V _{DS} =400V, V _{GS} =10V, I _D =9A		19.5		nC
Gate-Source Charge	Q _{gs}			4.6		
Gate-Drain Charge	Q _{gd}			7.1		
Turn-on delay time	t _{d(on)}	V _{DD} =250V, I _D =9A, R _G =25Ω		24		nS
Turn-on rise time	t _r			44		
Turn-off delay time	t _{d(off)}			55		
Turn-off fall time	t _f			35		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				9	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =9A			1.4	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =9A di/dt = 100A/μs		332		nS
Reverse Recovery Charge	Q _{rr}			3.5		μC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The power dissipation is limited by 150°C junction temperature.
- 3) The EAS data shows Max. rating . I_{AS}=6A, V_{DD}=50V, R_G=25 Ω, Starting T_J=25 °C.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

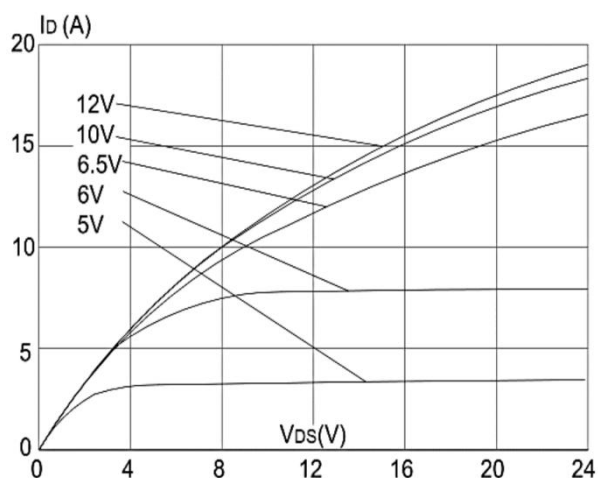


Figure1: Output Characteristics

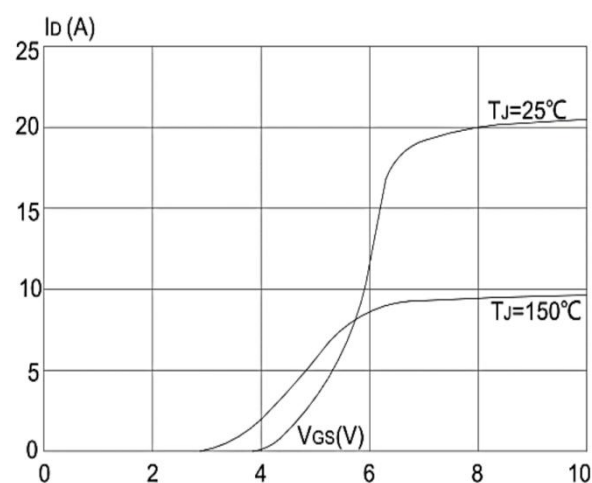


Figure 2: Typical Transfer Characteristics

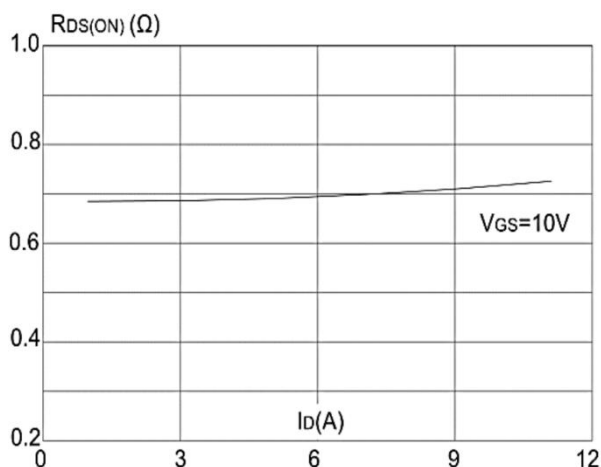


Figure 3: On-resistance vs. Drain Current

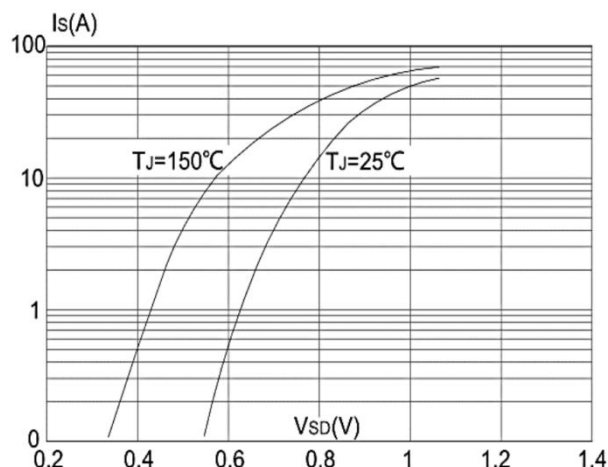


Figure 4: Body Diode Characteristics

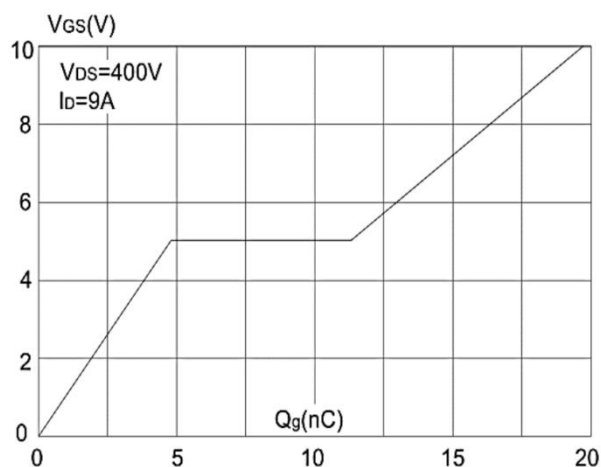


Figure 5: Gate Charge Characteristics

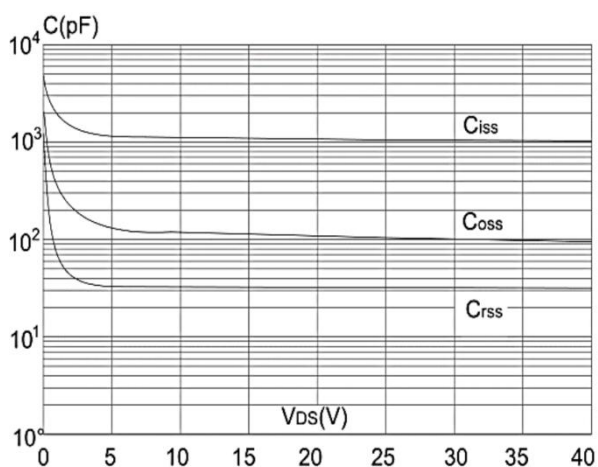


Figure 6: Capacitance Characteristics

Typical Characteristics

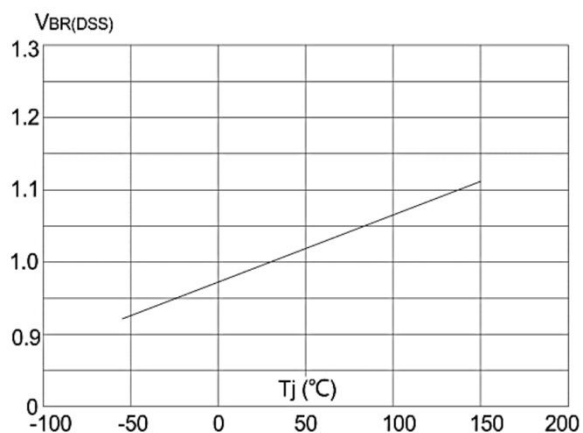


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

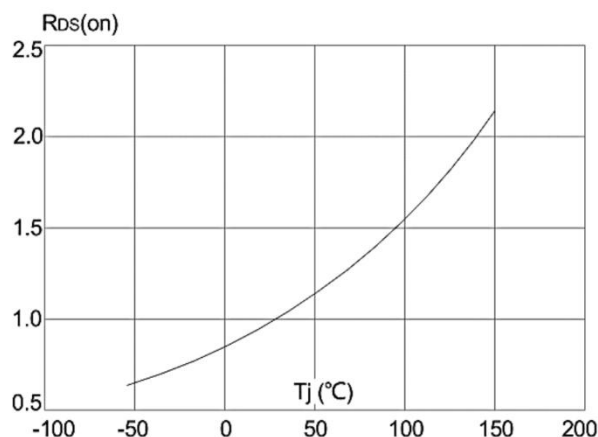


Figure 8: Normalized on Resistance vs. Junction Temperature

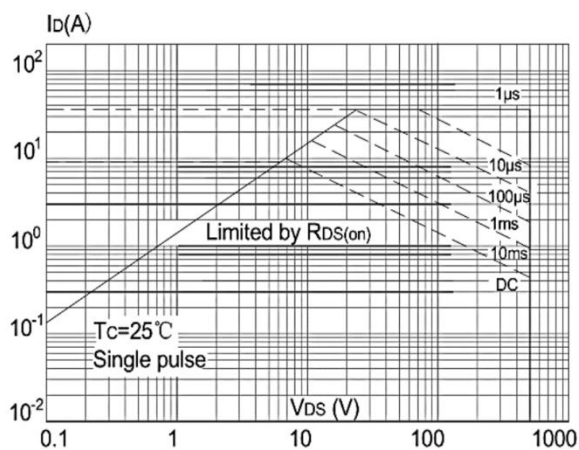


Figure 9: Maximum Safe Operating Area vs. Case Temperature

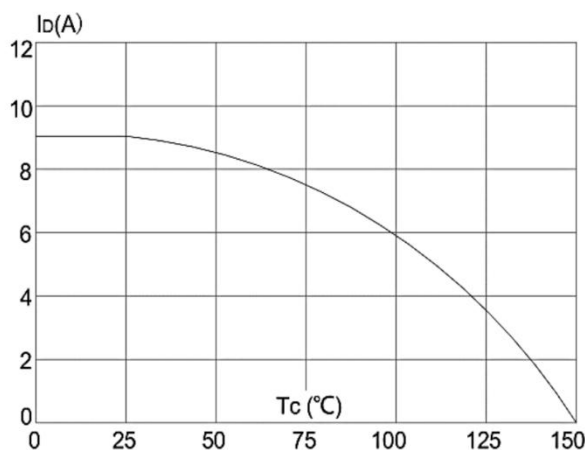


Figure 10: Maximum Continuous Drain Current

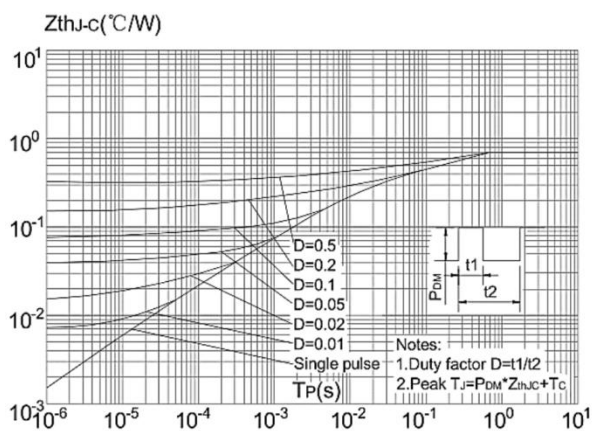
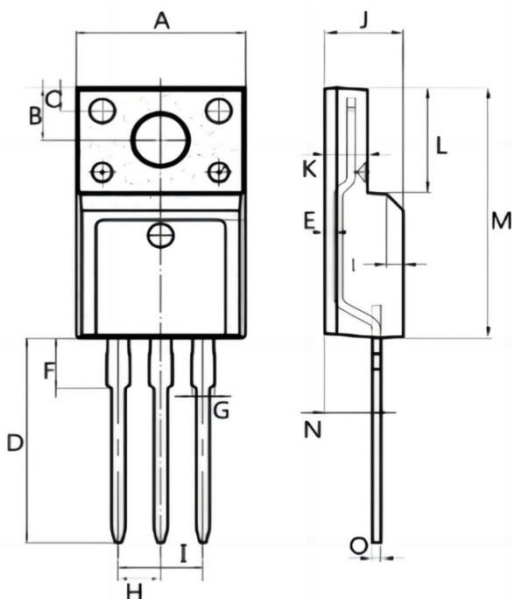


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.900	10.300	0.390	0.406
B	2.900	3.500	0.114	0.138
C	1.150	1.450	0.045	0.057
D	12.750	13.250	0.502	0.522
E	0.550	0.750	0.022	0.030
F	3.100	3.500	0.122	0.138
G	1.250	1.450	0.049	0.057
H	2.540 BSC.		0.100 BSC.	
I	5.080 BSC.		0.200 BSC.	
J	4.550	4.750	0.179	0.187
K	2.400	2.700	0.094	0.106
L	6.350	6.750	0.250	0.266
M	15.000	16.000	0.591	0.630
N	2.750	3.150	0.108	0.124
O	0.450	0.600	0.018	0.024