

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
800V	1.2Ω@10V	6A

Feature

- Super Junction High Voltage MOSFET technology
- Low Power Loss by High Speed Switching and Low On-Resistance
- Epoxy Meets UL 94 V-0 Flammability Rating

Application

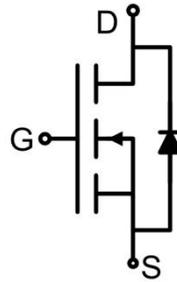
- Power switching application
- Adapter
- PFC Power Supply Stages

Package

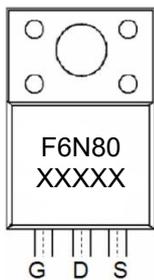


ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	800	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current(T _C =25°C)	I _D	6	A
Continuous Drain Current(T _C =100°C)	I _D (100°C)	3.8	A
Pulsed Drain Current ¹⁾	I _{DM}	12	A
Power Dissipation ³⁾ (T _C =25°C)	P _D	50	W
Thermal Resistance,Junction-to-Case	R _{θJC}	2.5	°C/W
Single pulse avalanche energy ²⁾	E _{AS}	4.9	mJ
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	800			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =800V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±10	μA
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 =2.5A		0.95	1.2	Ω
Dynamic characteristics⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f =400kHz		380		pF
Output Capacitance	C _{oss}			18		
Reverse Transfer Capacitance	C _{rss}			1.1		
Total Gate Charge	Q _g	V _{DS} =640V, V _{GS} =10V, I _D =4.5A		11		nC
Gate-Source Charge	Q _{gs}			3.3		
Gate-Drain Charge	Q _{gd}			4.5		
Turn-on delay time	t _{d(on)}	V _{DD} =400V, V _{GS} =10V, R _{GEN} =25Ω, I _D =4.5A		16		nS
Turn-on rise time	t _r			24		
Turn-off delay time	t _{d(off)}			59		
Turn-off fall time	t _f			19		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				6	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =4.5A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =6A, di/dt=100A/μs		380		nS
Reverse Recovery Charge	Q _{rr}			2		uC

Notes:

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2) T_J=25°C, V_{DD}=50V, V_G=10V, L=5mH, I_{AS}=1.4A.
- 3) P_d is based on max. junction temperature, using junction-case thermal resistance.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

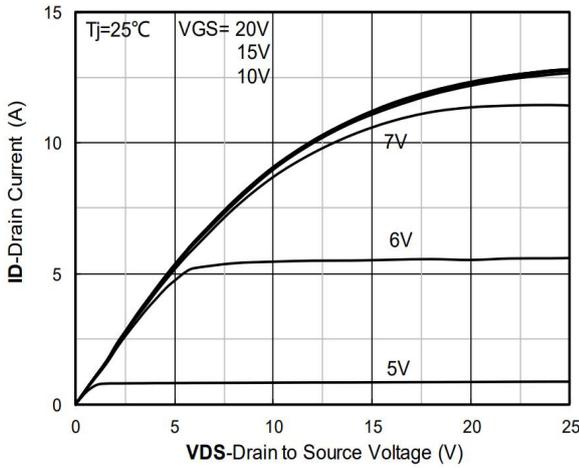


Figure 1. Output Characteristics

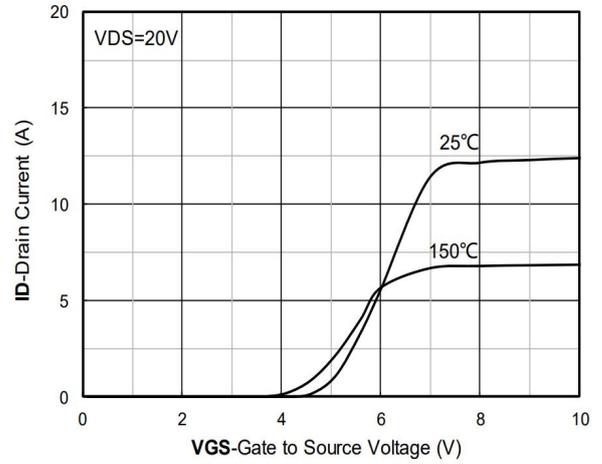


Figure 2. Transfer Characteristics

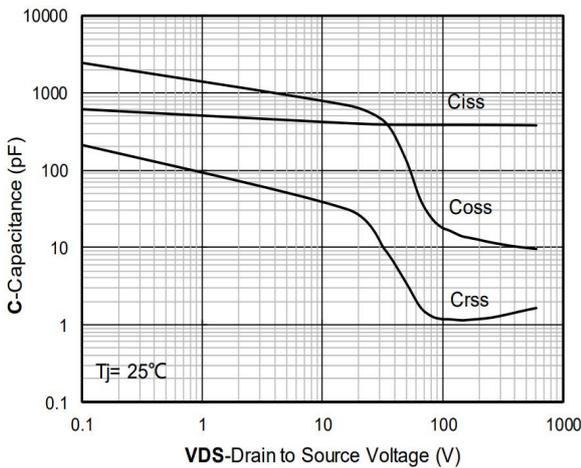


Figure 3. Capacitance Characteristics

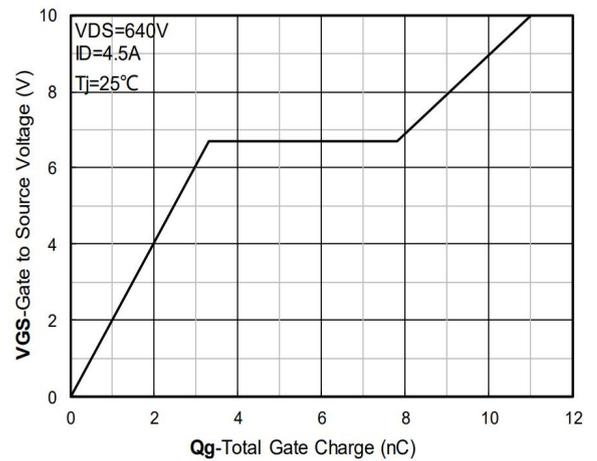


Figure 4. Gate Charge

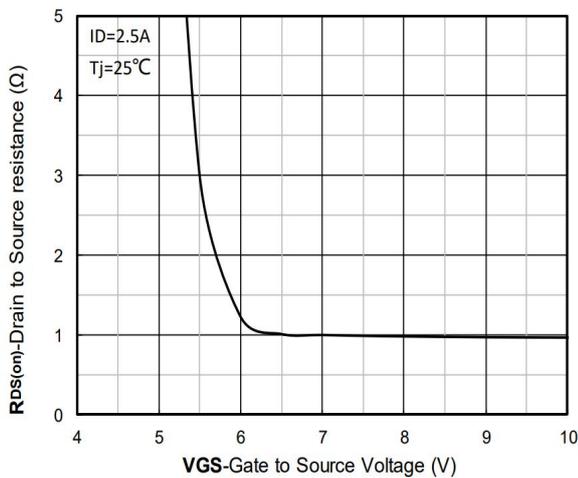


Figure 5. On-Resistance vs Gate to Source Voltage

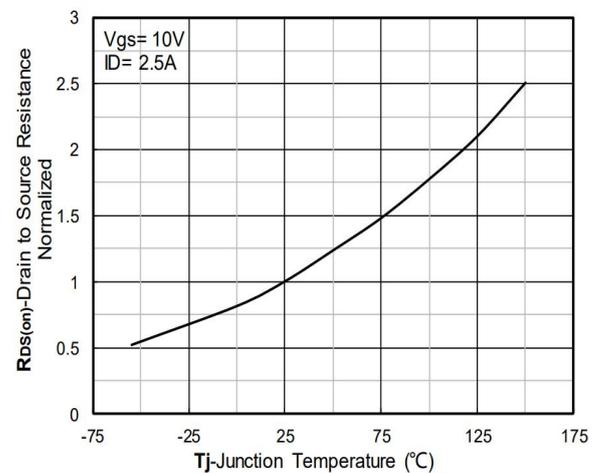


Figure 6. Normalized On-Resistance

Typical Characteristics

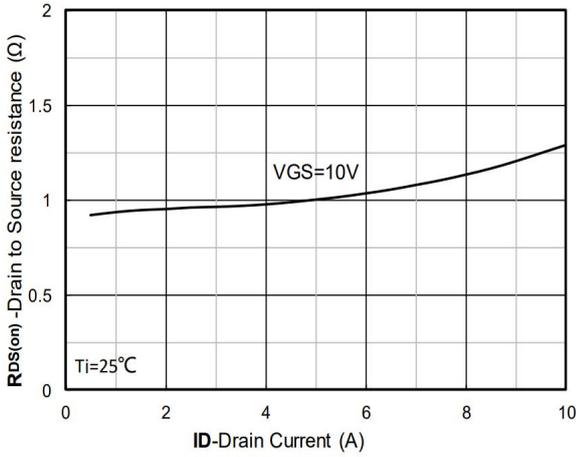


Figure 7. $R_{DS(on)}$ VS Drain Current

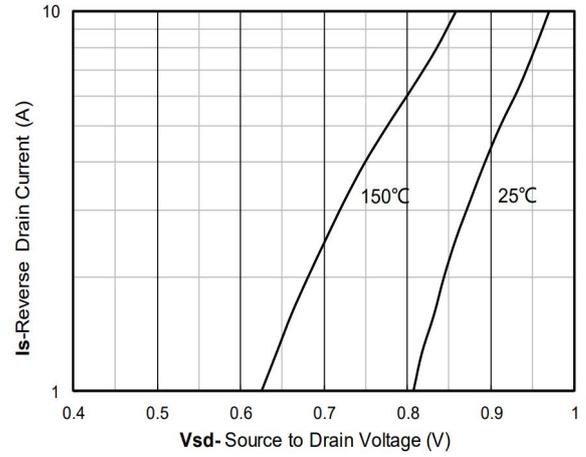


Figure 8. Forward characteristics of reverse diode

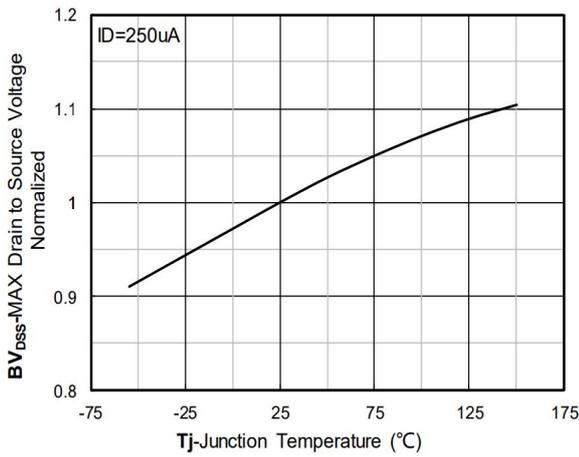


Figure 9. Normalized breakdown voltage

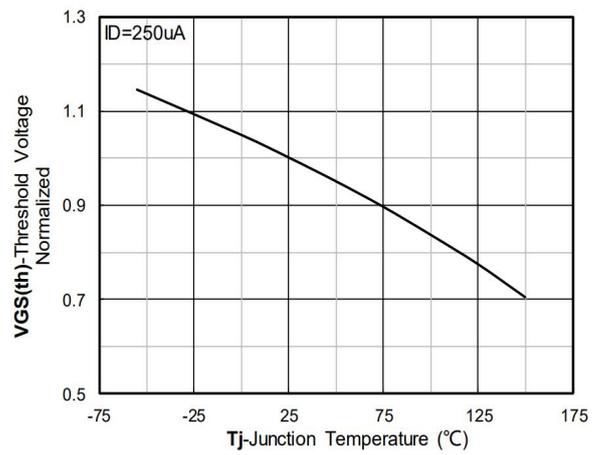


Figure 10. Normalized Threshold voltage

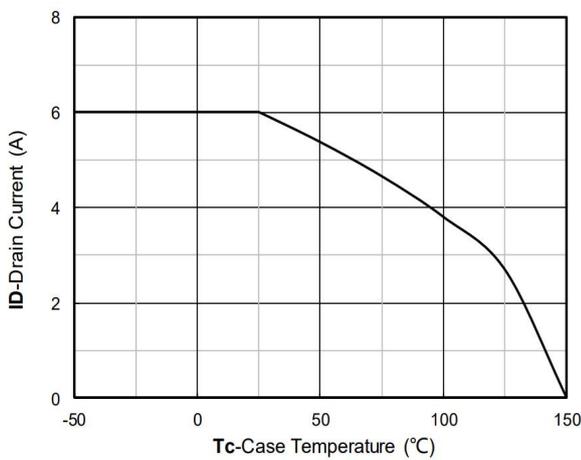


Figure 11. Current dissipation

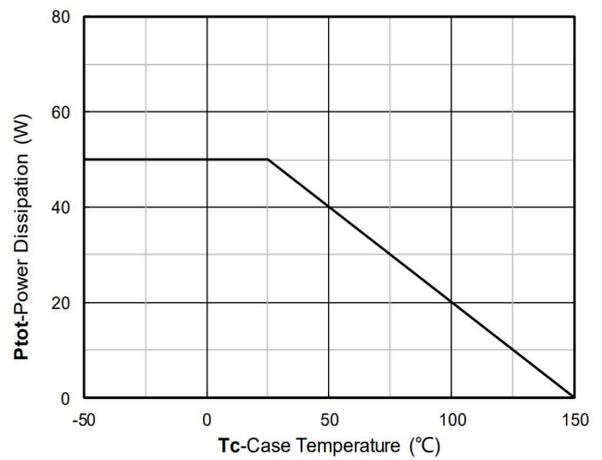


Figure 12. Power dissipation

Typical Characteristics

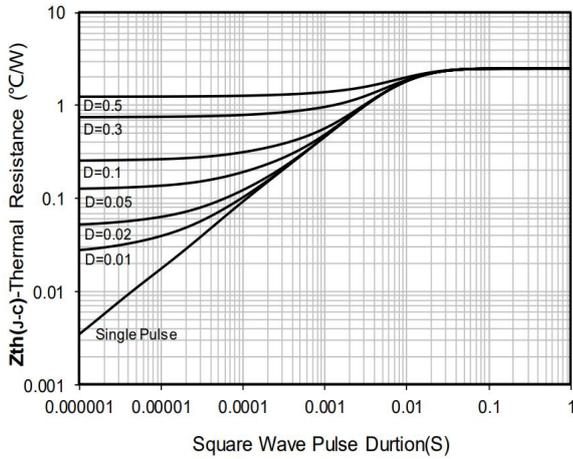


Figure 13. Maximum Transient Thermal Impedance

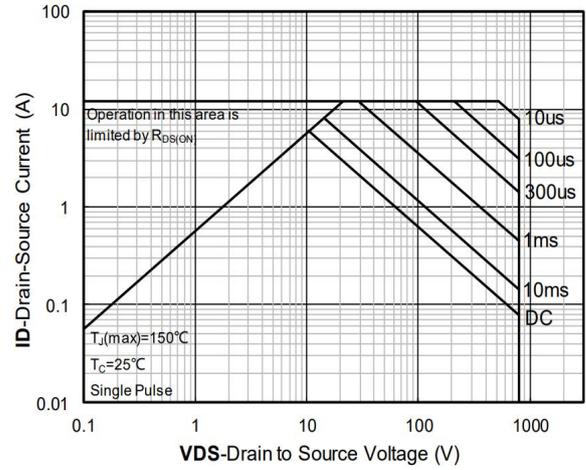
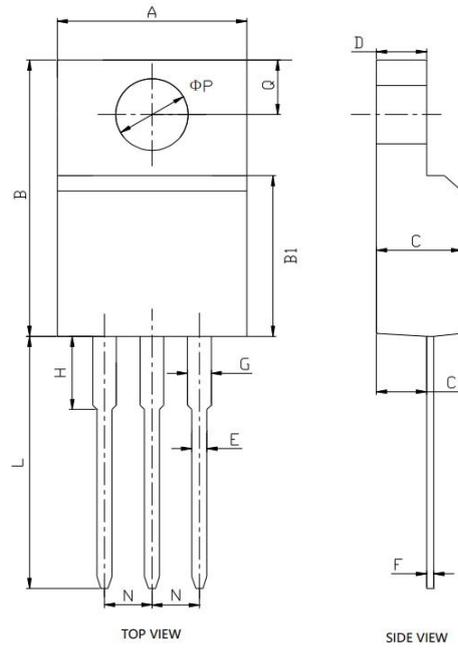


Figure 14. Safe Operation Area

ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.700	10.300	0.382	0.406
B	15.500	16.100	0.610	0.634
B1	8.990	9.390	0.354	0.370
C	4.400	4.800	0.173	0.189
C1	2.150	2.550	0.085	0.100
D	2.500	2.900	0.098	0.114
E	0.700	0.900	0.028	0.035
F	0.400	0.600	0.016	0.024
G	1.120	1.420	0.044	0.056
H	3.400	3.800	0.134	0.150
L	12.600	13.600	0.496	0.535
N	2.340	2.740	0.092	0.108
Q	3.150	3.550	0.124	0.140
ΦP	3.000	3.300	0.118	0.130