

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	1.3Ω@10V	8A

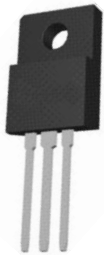
Feature

- Fast switching capability
- Low gate charge

Application

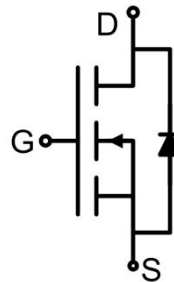
- Power switching application
- Motor drivers
- Relay drivers

Package

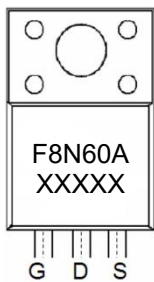


ITO-220AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current($T_C=25^\circ\text{C}$)	I_D	8	A
Continuous Drain Current($T_C=100^\circ\text{C}$)	$I_D(100^\circ\text{C})$	4.5	
Pulsed Drain Current ¹⁾	I_{DM}	32	A
Power Dissipation($T_C=25^\circ\text{C}$)	P_D	50	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	4	°C/W
Single pulse avalanche energy ²⁾	E_{AS}	490	mJ
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2		4	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4A$		0.95	1.3	Ω
Forward transferconductance	g_{FS}	$V_{DS} = 15V, I_D = 2A$		3.9		S
Dynamic characteristics⁵⁾						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		1126		pF
Output Capacitance	C_{oss}			108		
Reverse Transfer Capacitance	C_{rss}			12		
Gate Resistance	R_g			1.5		Ω
Total Gate Charge ³⁾	Q_g	$V_{DD} = 480V, V_{GS} = 10V, I_D = 7A^{(3,4)}$		30		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			14		
Turn-on delay time ³⁾	$t_{d(on)}$	$V_{DS} = 300V, I_D = 7A, R_G = 25\Omega^{(3,4)}$		13		nS
Turn-on rise time	t_r			100		
Turn-off delay time	$t_{d(off)}$			126		
Turn-off fall time	t_f			48		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				8	A
Diode Forward voltage ³⁾	V_{SD}	$V_{GS} = 0V, I_{SD} = 8A$			1.4	V
Reverse Recovery Time ³⁾	t_{rr}	$V_{GS} = 0V, I_F = 7A, di/dt = 100A/\mu s$		315		nS
Reverse Recovery Charge	Q_{rr}			2.6		μC

Notes:

- 1) Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2) L = 10mH, IAS = 7.5A, VDD = 50V, RG = 25 Ω, Starting TJ = 25°C.
- 3) Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
- 4) Essentially independent of operating temperature.
- 5) Guaranteed by design, not subject to production testing.

Typical Characteristics

Fig.1 Output characteristics

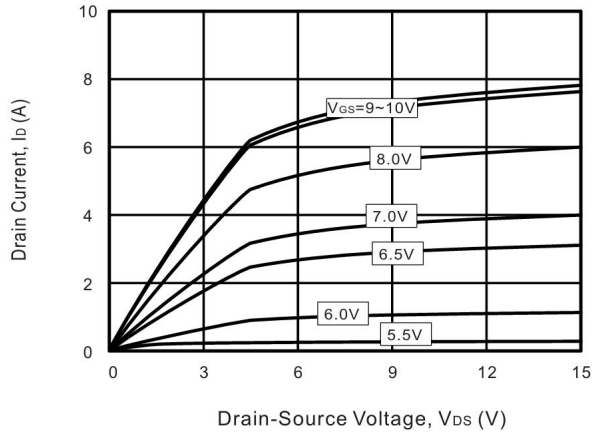


Fig.2 Power Dissipation

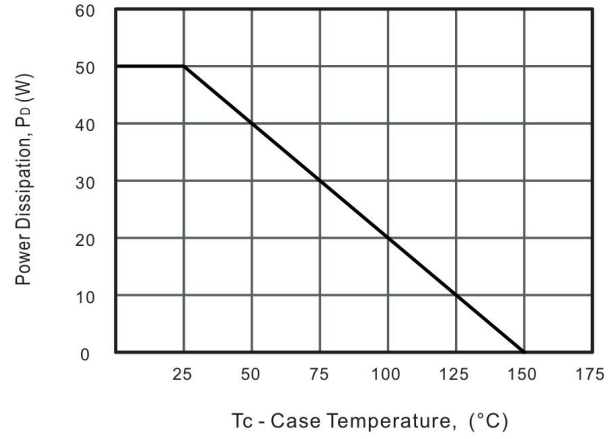


Fig.3 Drain Current Derating

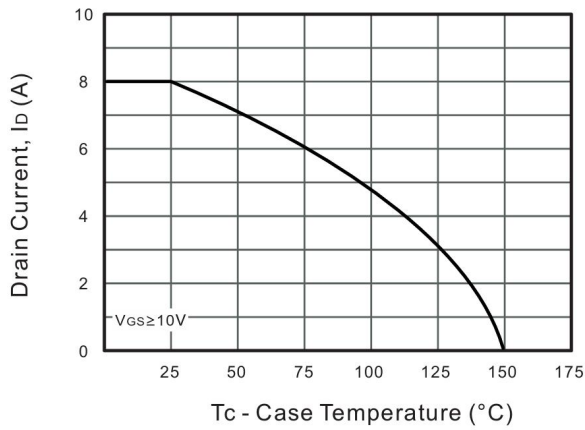


Fig.4 Drain-Source On-Resistance vs. Drain Current

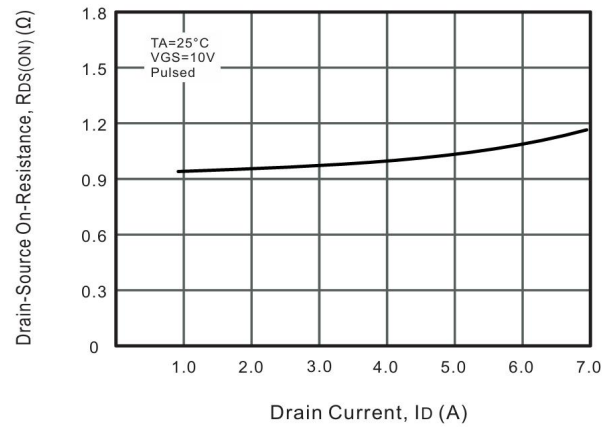


Fig.5 Gate Threshold Voltage vs. Junction Temperature

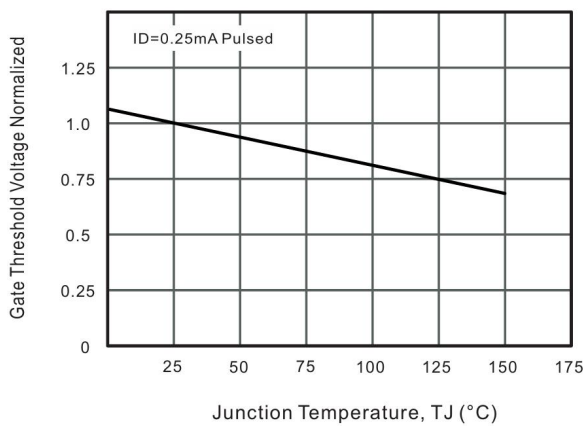
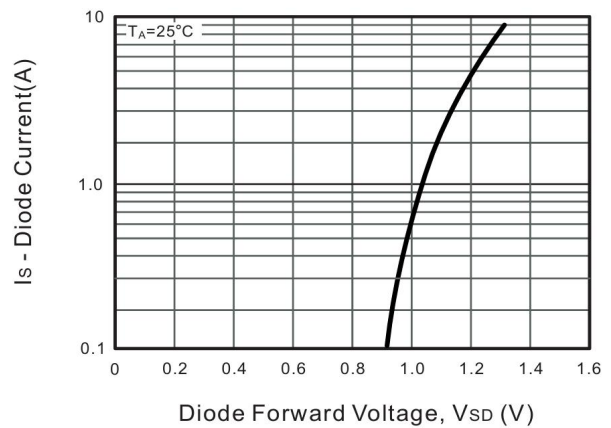


Fig.6 Body-diode Forward Characteristics



Typical Characteristics

Fig.7 Drain-Source On-Resistance vs. Junction Temperature

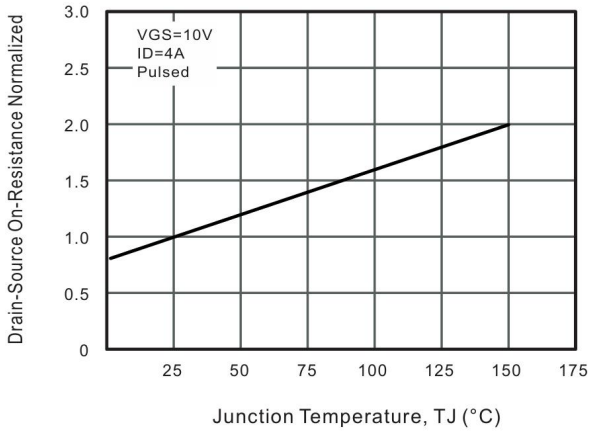


Fig.8 Breakdown Voltage vs. Junction Temperature

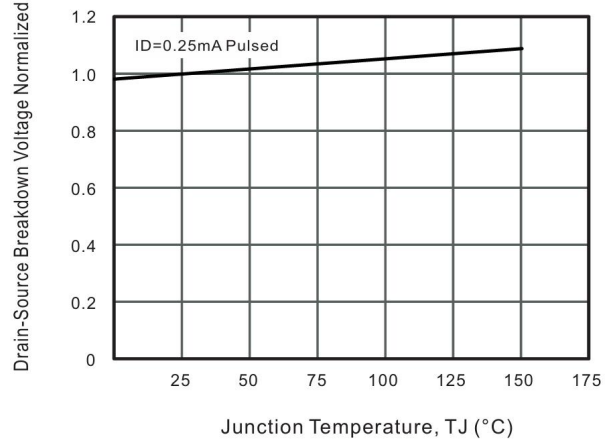


Fig.9 Capacitance Characteristics

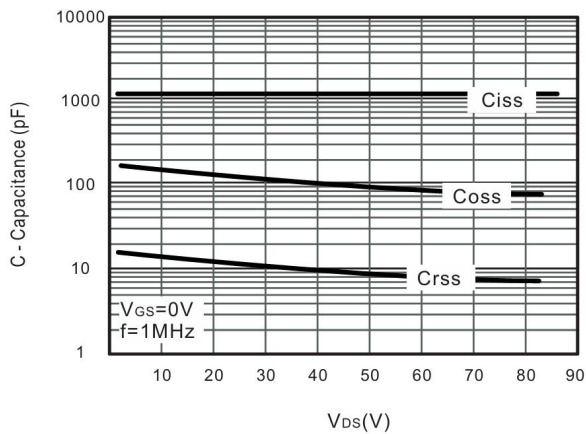


Fig.10 Gate Charge Characteristics

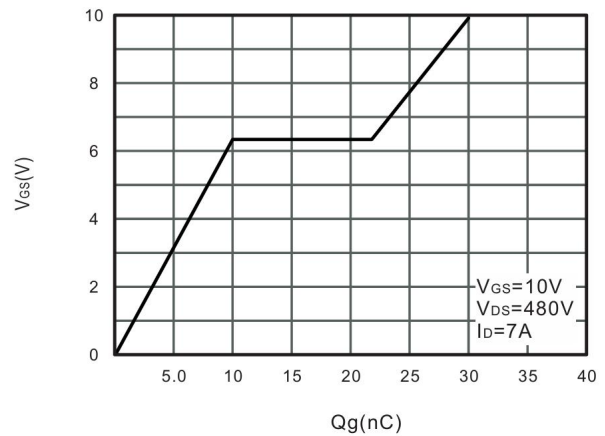


Fig.11 Safe Operating Area

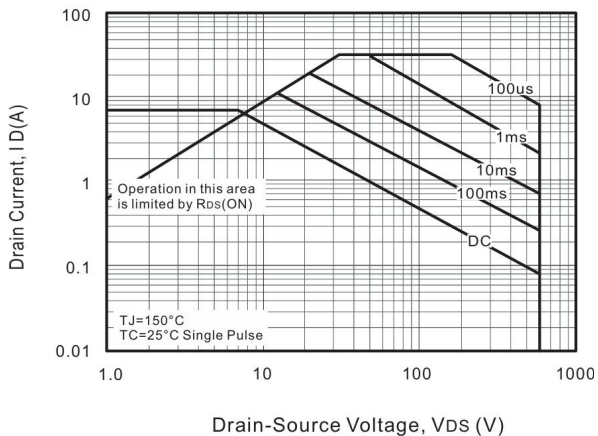
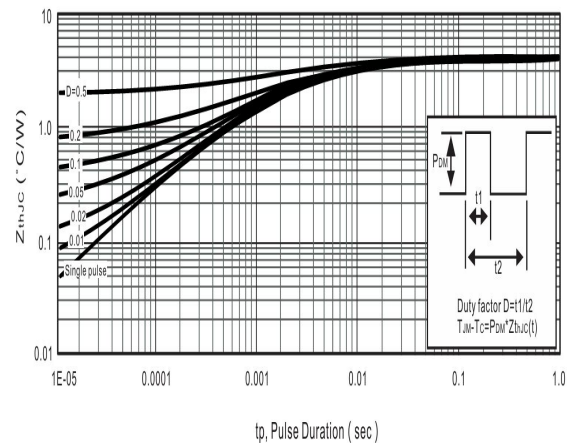
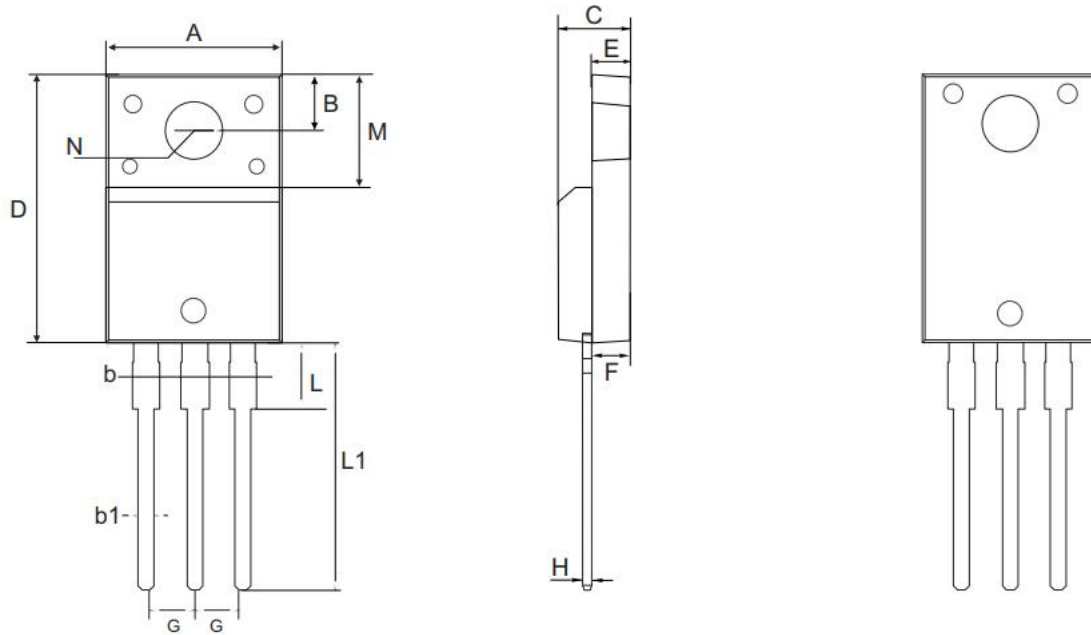


Fig.12 Max. Transient Thermal Impedance



ITO-220AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.080	10.280	0.397	0.405
B	3.170	3.370	0.125	0.133
b	1.240	1.440	0.049	0.057
b1	0.700	0.900	0.028	0.035
C	4.500	4.900	0.177	0.193
D	15.670	16.070	0.617	0.633
E	2.340	2.740	0.092	0.108
F	2.340	2.740	0.092	0.108
G	2.440	2.640	0.096	0.104
H	0.400	0.600	0.016	0.024
L	2.450	2.850	0.096	0.112
L1	13.300	13.700	0.524	0.539
M	6.380	6.980	0.251	0.275
N	3.180 TYP		0.125 TYP	