FXN0206C Series

Rev.A

General Description

The FXN0206C uses advanced Silicon's MOSFET Technology, which provides high performance in on-state resistance, fast switching performance, and excellent quality.

These devices can also be utilized in industrial applications such as Low Power Drives SMPS, DC/DC converter, and general purpose applications.

Features

VDS = 65V

ID = 190A @VGS = 10V

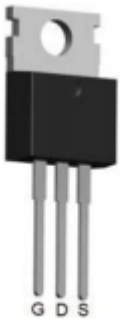
Very low on-resistance

RDS(ON) < 2.8mΩ @VGS = 10V

100% UIL Tested

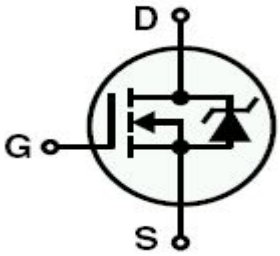
100% Rg Tested

150 °C operating temperature



To-220 Top View

N-channel



Schematic Diagram

Absolute Maximum Ratings (T_J =25 °C)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		VDSS	65	V
Gate-Source Voltage		VGSS	±30	V
Continuous Drain Current (1)	Tc=25°c(silicon limited)	ID	190	A
	Tc=25°C(package limited)		145	
	Tc=100°C(silicon limited)		118	
Pulsed Drain Current (2)		IDM	750	
Power Dissipation	Tc=25°C	PD	160	W
	Tc=100°C		116	
Single Pulse Avalanche Energy (3)		EAS	850	mJ
Junction and Storage Temperature Range		TJ, Tstg	-55~175	°C

Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Ambient (1)	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.85	

Electrical Characteristics (T_J =25°C)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	65		-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2		4	
Drain Cut-Off Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V	-	-	±0.1	
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D =30A	-	2.3	2.8	mΩ
Forward Transconductance	g_{fs}	V_{DS} = 30V, I_D =40A	-	-	-	S
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{DS} = 50V, I_D = 40A, V_{GS} = 10V	-	148		nC
Gate-Source Charge	Q_{gs}		-	19.6	-	
Gate-Drain Charge	Q_{gd}		-	52	-	
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	-	5750	-	pF
Reverse Transfer Capacitance	C_{rss}		-	513	-	
Output Capacitance	C_{oss}		-	530	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 10V, V_{DS} = 30V, I_D = 40A , R_G =2.5Ω	-	26	-	ns
Rise Time	t_r		-	37	-	
Turn-Off Delay Time	$t_{d(off)}$		-	68	-	
Fall Time	t_f		-	34	-	
Gate Resistance	Rg	f=1 MHz	-		-	Ω
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S =40A, V_{GS} = 0V	-	0.9	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F =40A, dI/dt = 100A/μs	-	38		ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	32		nc

Note

1. Surface mounted FR-4 board by JEDEC (jesd51-7)
2. Pulse width limited by T_{Jmax}
3. E_{AS} is tested at starting Tj = 25℃, L =50mH, I_{AS} = 45A, V_{GS} = 10V VDD=50V

Typical Characteristics （Tj=25C Noted）

Figure1. Output Characteristics

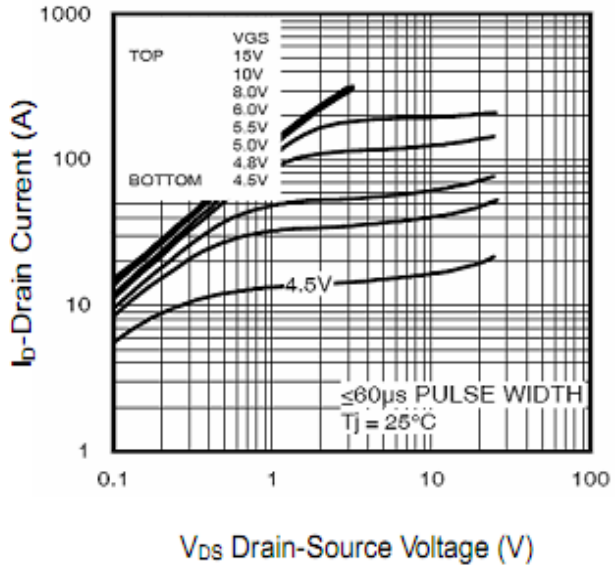


Figure2. Transfer Characteristics

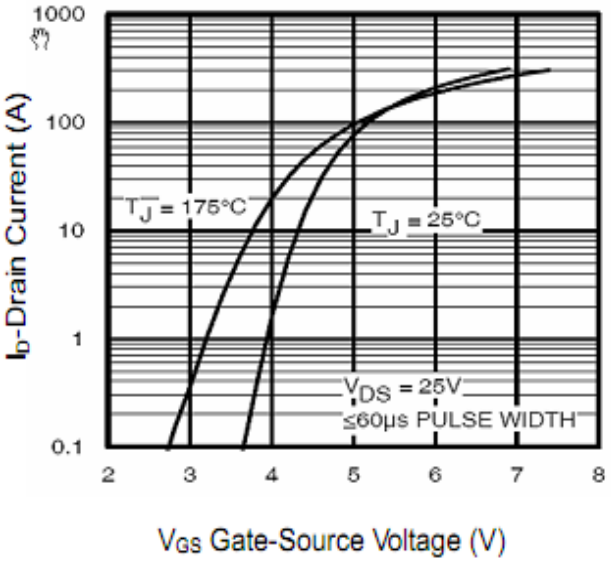


Figure3. BVDSS vs Junction Temperature

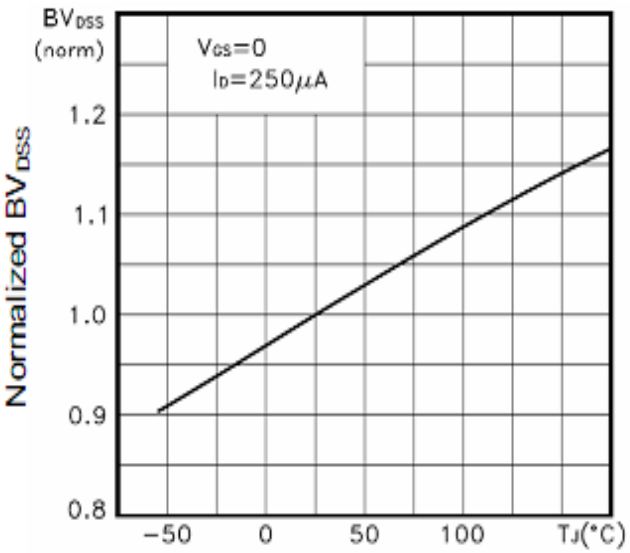


Figure4. ID vs Junction Temperature

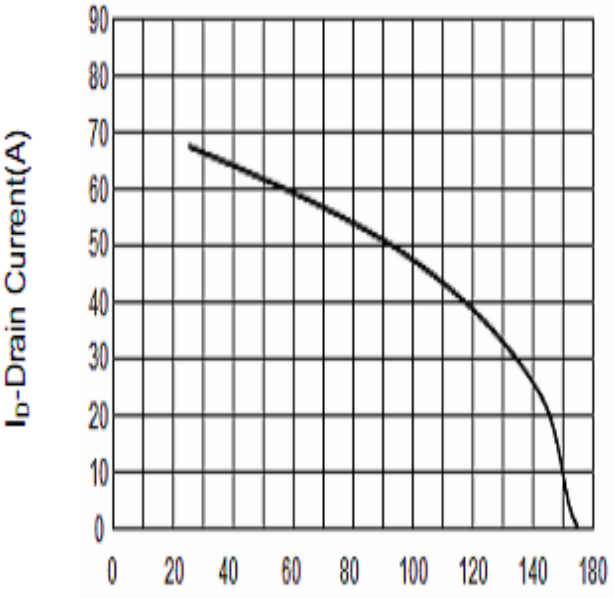


Figure5. VGS(th) vs Junction Temperature

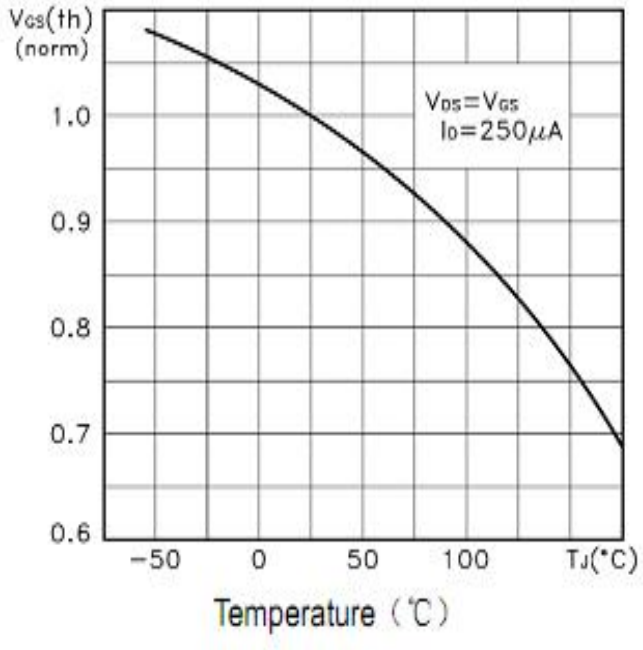


Figure6. Rdson Vs Junction Temperature

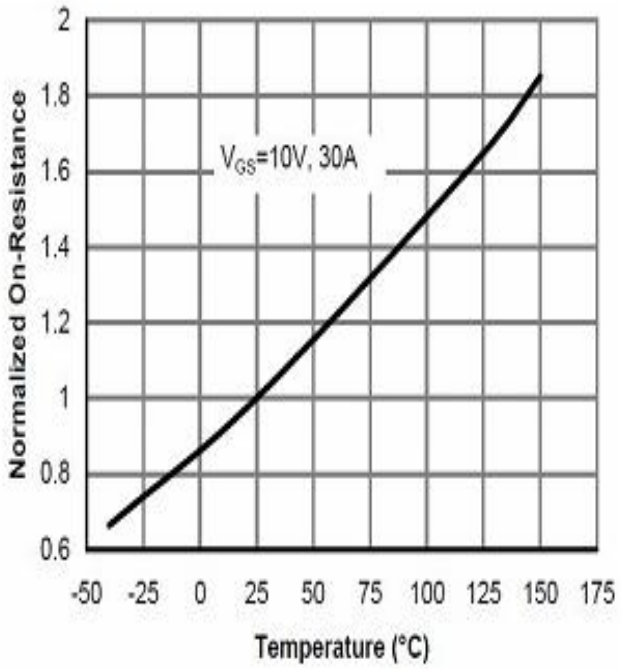


Figure7. Gate Charge

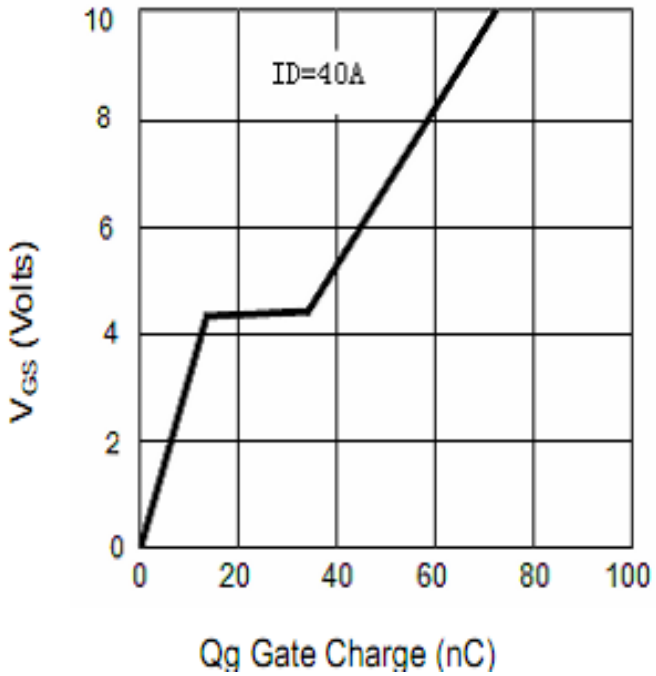


Figure8. Capacitance vs Vds

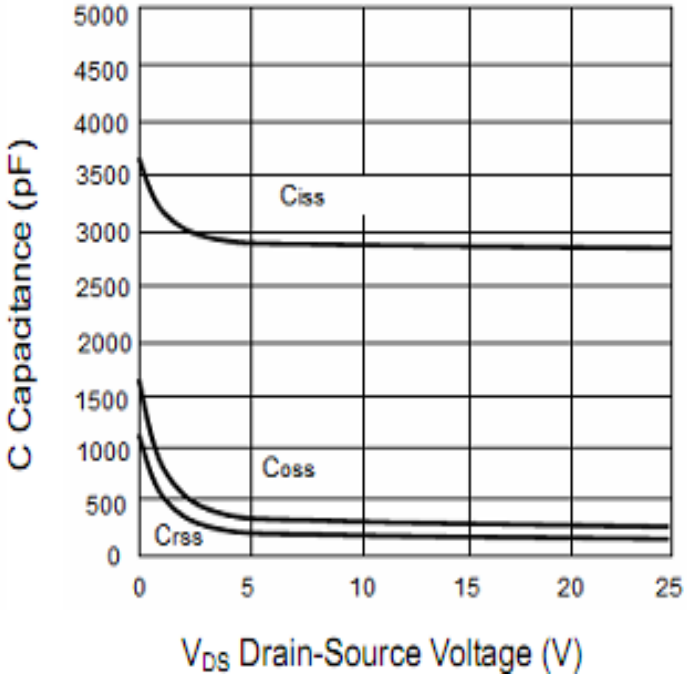


Figure9. Source- Drain Diode Forward

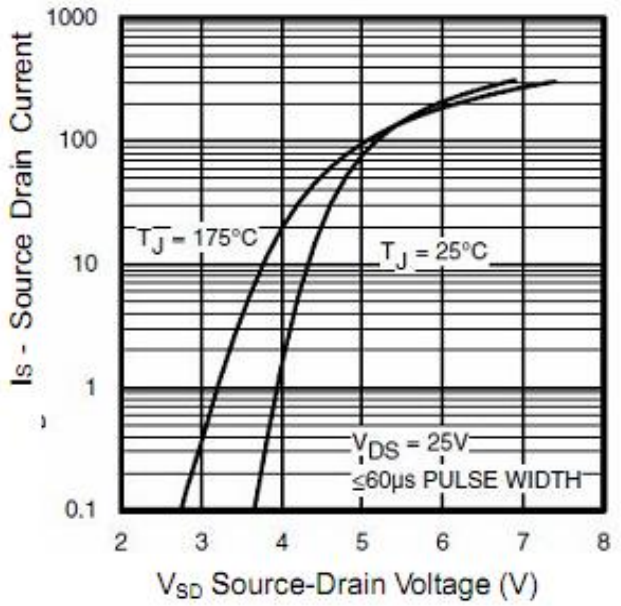


Figure10. Safe Operation Area

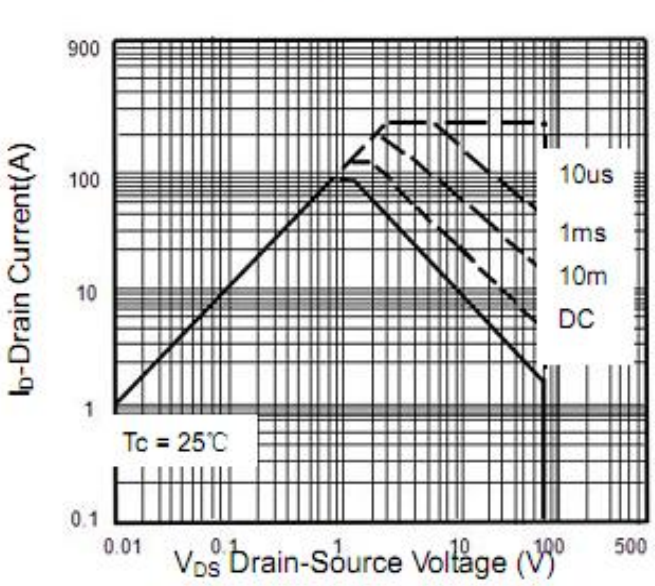
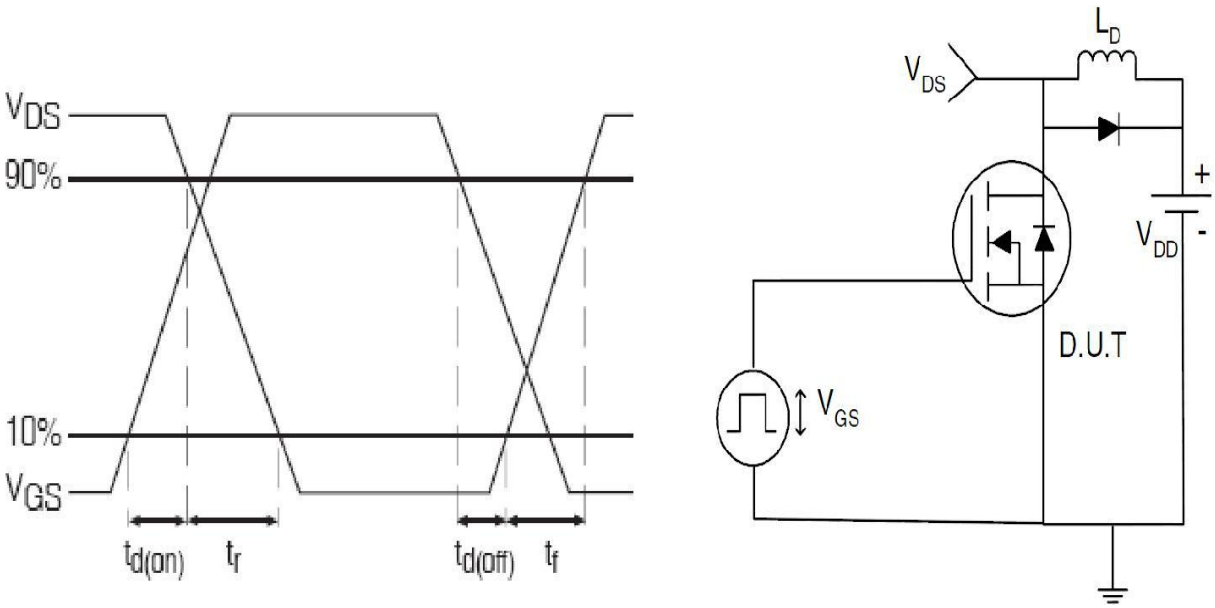
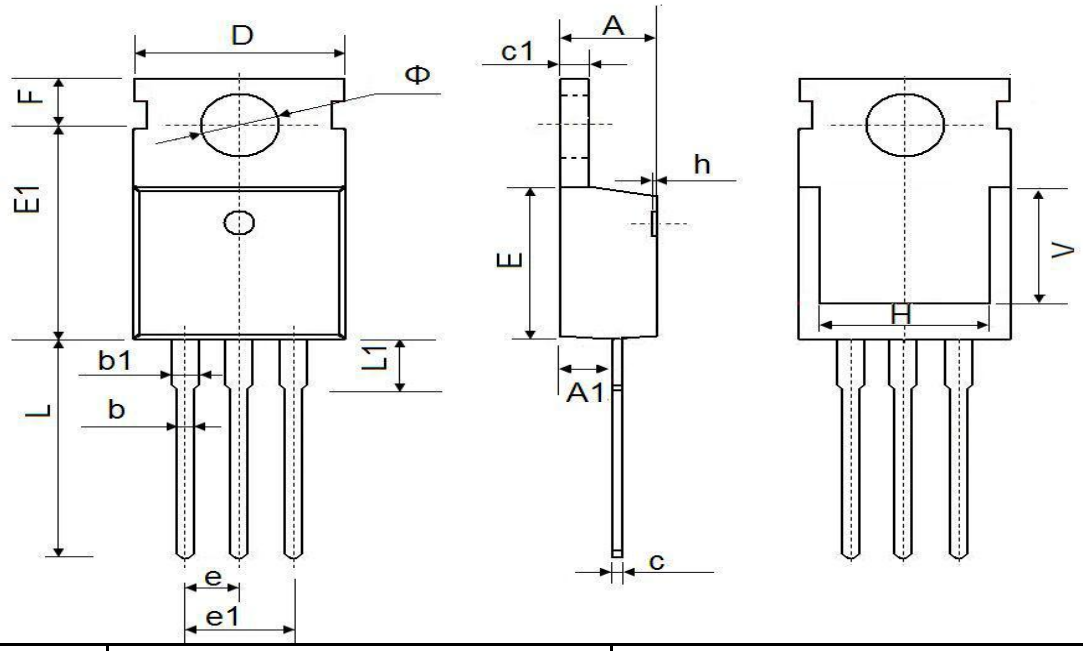


Figure 10.Switch Time Test Circuit：



TO-220 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max
A	4.300	4.700	0.169	0.185
A1	2.200	2.600	0.087	0.102
b	0.700	0.950	0.028	0.037
b1	1.170	1.410	0.046	0.056
c	0.450	0.650	0.018	0.026
c1	1.200	1.400	0.047	0.055
D	9.600	10.400	0.378	0.409
E	8.8200	9.750	0.348	0.384
E1	12.650	12.950	0.498	0.510
e	2.540 TYP.		0.100TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.750	14.300	0.502	0.563
L1	2.850	3.950	0.112	0.156
V	7.200 REF.		0.295 REF.	
Φ	3.400	4.000	0.134	0.157