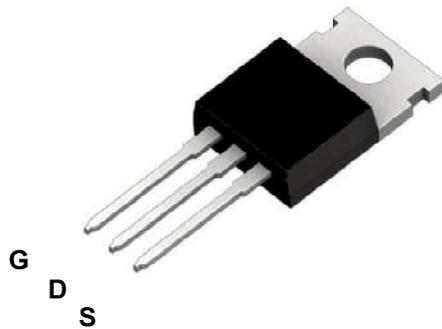


General Description

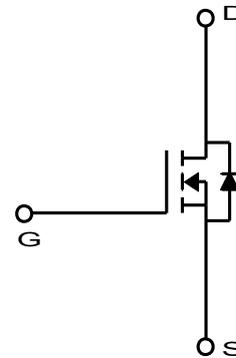
The FWP08N190TH uses advanced Fullwin's MOSFET Technology, which provides high performance in on-state resistance, fast switching performance and excellent quality. FWP08N190 is suitable device for Synchronous Rectification For Server and general purpose applications.

Features

- $V_{DS} = 80V$
- $I_D = 120A @ V_{GS} = 10V$
- $R_{DS(ON)} < 3.2 m\Omega @ V_{GS} = 10V$
- 100% UIL Tested
- 100% Rg Tested



TO-220



Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	80	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current ⁽¹⁾	$T_c=25^\circ C$ (Silicon Limited)	I_D	190	A
	$T_c=25^\circ C$ (Package Limited)		120	
	$T_c=100^\circ C$		135	
Pulsed Drain Current		I_{DM}	760	
Power Dissipation	$T_c=25^\circ C$	P_D	231	W
	$T_c=100^\circ C$		115	
Single Pulse Avalanche Energy ⁽²⁾		E_{AS}	338	mJ
Junction and Storage Temperature Range		T_J, T_{stg}	-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	$R_{\theta JC}$	0.65	

Ordering Information

Part Number	Temp. Range	Package	Packing	RoHS Status
FWP08N190TH	-55~175°C	TO-220	Tube	Halogen Free

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	80	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.3	-	3.8	
Drain Cut-Off Current	I _{DSS}	V _{DS} = 64V, V _{GS} = 0V	-	-	1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	
Drain-Source ON Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 50A	-	2.7	3.2	mΩ
Forward Transconductance	g _{fs}	V _{DS} = 10V, I _D = 50A	-	120	-	S
Dynamic Characteristics						
Total Gate Charge	Q _g	V _{DS} = 40V, I _D = 50A, V _{GS} = 10V	-	105	-	nC
Gate-Source Charge	Q _{gs}		-	30	-	
Gate-Drain Charge	Q _{gd}		-	26	-	
Input Capacitance	C _{iss}	V _{DS} = 40V, V _{GS} = 0V, f = 1.0MHz	-	6700	-	pF
Reverse Transfer Capacitance	C _{rss}		-	25	-	
Output Capacitance	C _{oss}		-	1500	-	
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DS} = 40V, I _D = 50A, R _G = 3.0Ω	-	25	-	ns
Rise Time	t _r		-	15	-	
Turn-Off Delay Time	t _{d(off)}		-	75	-	
Fall Time	t _f		-	35	-	
Gate Resistance	R _g	f = 1 MHz	-	3.5	-	Ω
Drain-Source Body Diode Characteristics						
Source Drain Diode Current	I _{SD}		-	-	190	A
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 60A, V _{GS} = 0V	-	0.9	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 50A, di/dt = 100A/μs	-	120		ns
Body Diode Reverse Recovery Charge	Q _{rr}		-	415		nC

Note :

- Surface mounted FR-4 board by JEDEC (jesd51-7). Continuous current at T_C=25°C is silicon limited
- E_{AS} is tested at starting T_J = 25°C, L = 1.0mH, I_{AS} = 26.0A, V_{GS} = 10V.

Electrical characteristics diagrams

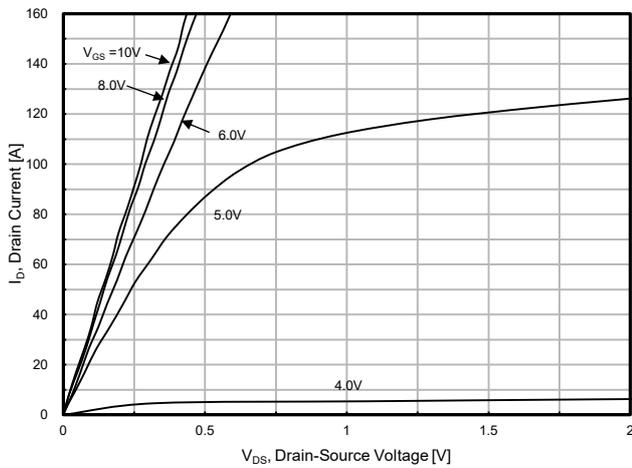


Fig. 1. On-Region Characteristics

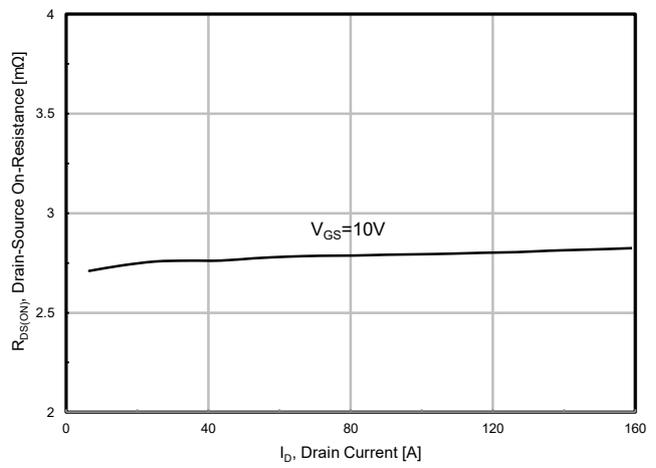


Fig. 2. On-Resistance vs. Drain Current and Gate Voltage

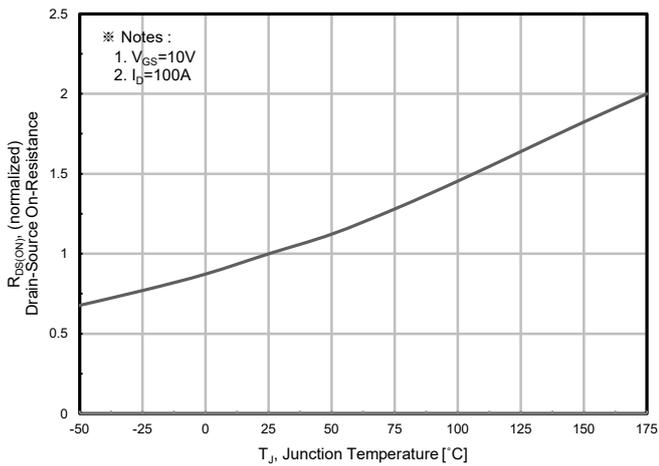


Fig. 3. On-Resistance vs. Junction Temperature

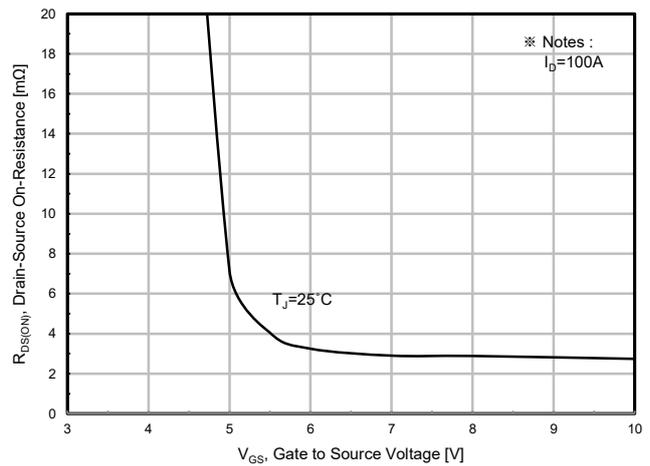


Fig. 4. On-Resistance vs. Gate to Source Voltage

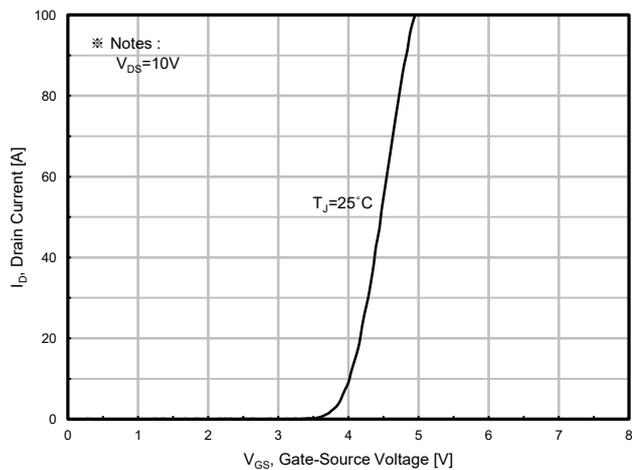


Fig. 5. Transfer Characteristics

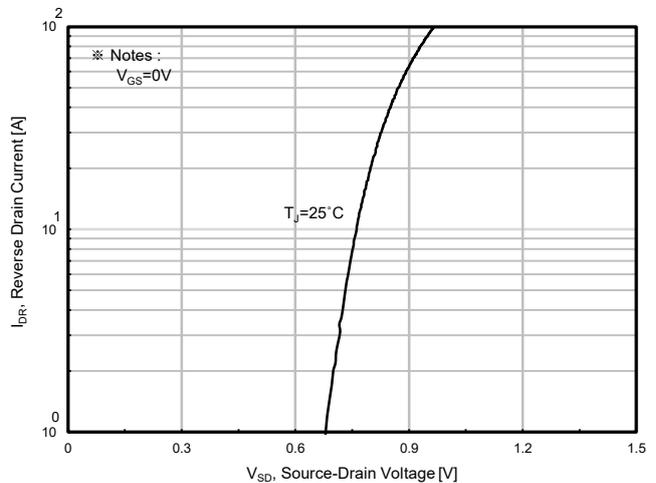


Fig. 6. Source-Drain Diode Forward Voltage

Electrical characteristics diagrams

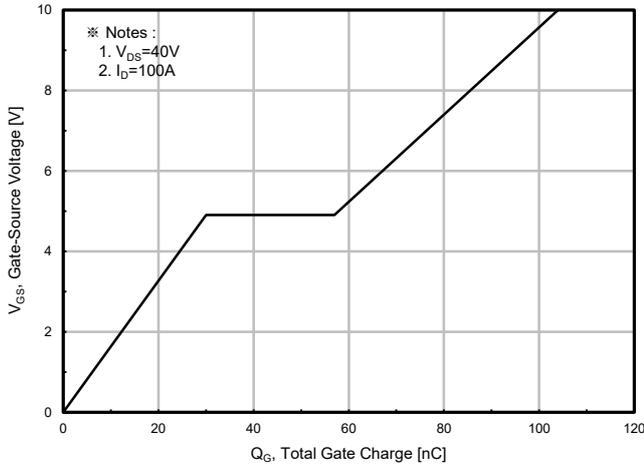


Fig. 7. Gate Charge

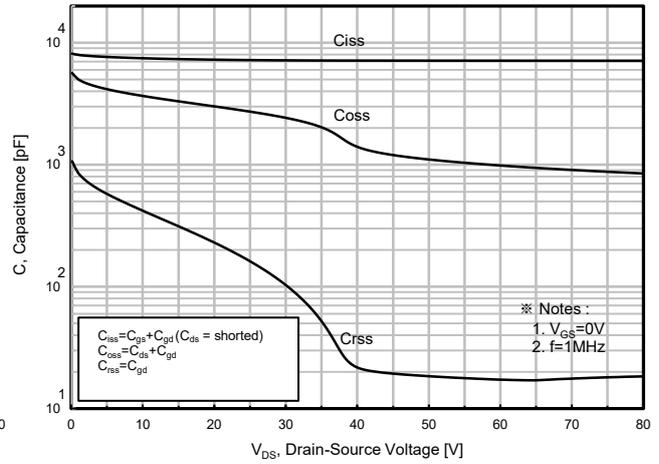


Fig. 8. Capacitance

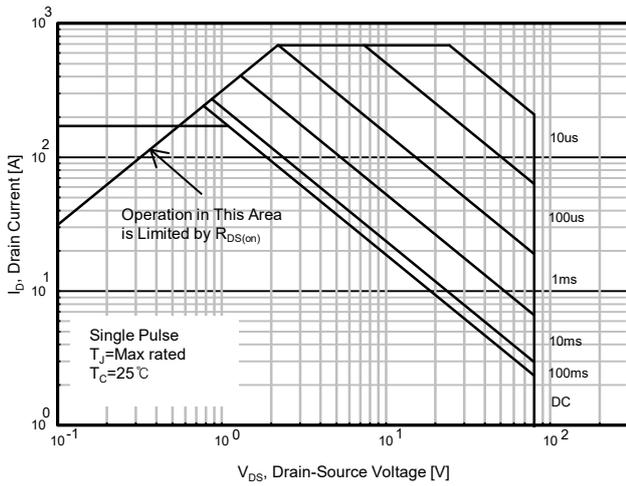


Fig. 9. Safe Operating Area, Junction-to-Ambient

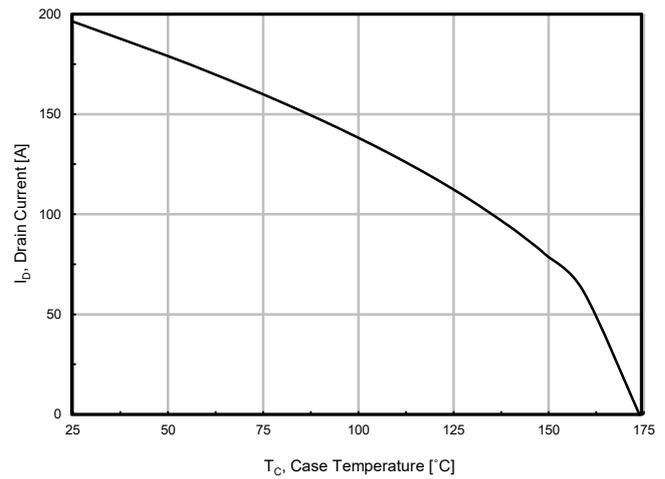


Fig. 10. Maximum Drain vs. Case Temperature

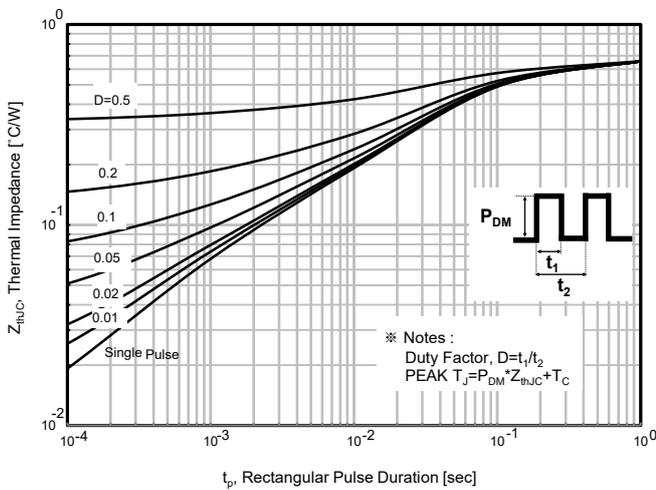
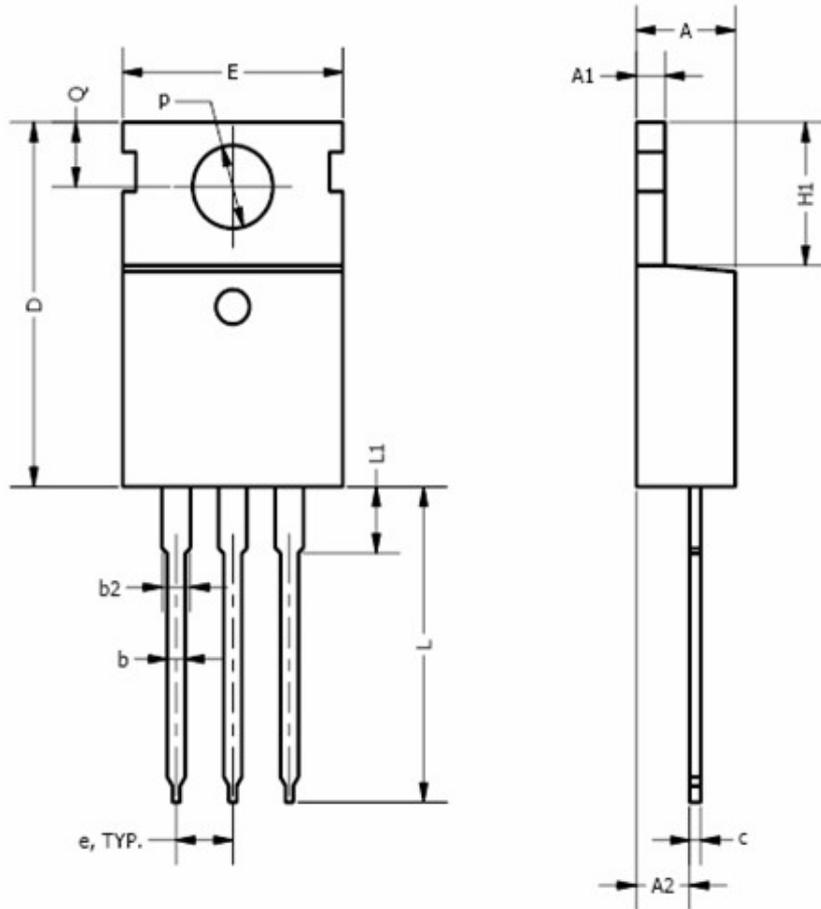


Fig. 11. Thermal Transient Impedance, Junction-to-Ambient

Package Dimension

3 Leads, TO-220

Dimensions are in millimeters unless otherwise specified



Symbol	Min	Nom	Max
A	3.56		4.83
A1	0.50		1.40
A2	2.03		2.92
b	0.38	0.69	1.02
b2	1.14	1.45	1.78
c	0.36		0.61
D	14.22		16.51
e	2.54 TYP		
E	9.65		10.67
H1	5.84		6.86
L	12.70		14.73
L1			6.35
ϕP	3.53		4.09
Q	2.54		3.43

DISCLAIMER:

The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.

Fullwin reserves the right to change the specifications and circuitry without notice at any time. Fullwin does not consider responsibility for use of any circuitry other than circuitry entirely included in a Fullwin product. FW is a registered trademark of Fullwin Technology Co., Ltd.