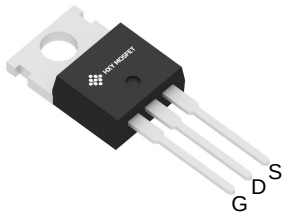
Description

The HXY90N08P uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.



TO-220

General Features

V_{DS} =80V,I_D =96A

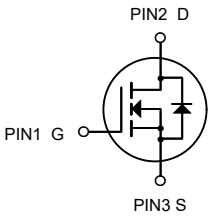
$R_{DS(ON)}$ < 9mΩ @ V_{GS}=10V

Application

High efficiency switch mode power supplies

Power factor correction

Electronic lamp ballast



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Marking	Units Tube
HXY90N08P	TO-220	90N08 xxxx	50

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	96	A
Drain Current-Continuous(T_C=100°C)	I_D (100°C)	67	A
Pulsed Drain Current	I_{DM}	368	A
Maximum Power Dissipation	P_D	146	W
Derating factor	-	1.06	W/°C
Single pulse avalanche energy (Note 5)	E_{AS}	625	mJ
Thermal Resistance,Junction-to-Case(Note 2)	$R_{\theta JC}$	1.02	°C/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	°C

Electrical Characteristics T_J= 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	80	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=80V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	2	---	4	V
$R_{DS(ON)}$	Drain-Source On Resistance[1]	V_{GS}=10V,I_D=40A	---	6.2	7.2	mΩ
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	6395	---	pF
C_{oss}	Output Capacitance		---	386	--	
C_{rss}	Reverse Transfer Capacitance		---	255	---	
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=30V, I_D=40A, R_{ENG}=2.5Ω,V_{GS}=10V	---	22	---	ns
t_r	Rise Time		---	50	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	65	---	ns
t_f	Fall Time		---	22	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=40A	---	116	---	nc
Q_{gs}	Gate-Source Charge		---	27	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	39	---	nc
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_{SD}=40A	---	0.89	0.99	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	96	A
I_{SM}	Pulsed Drain Current		---	---	368	A
Trr	Reverse Recovery Time[3]	I_F=75A,T_J=25°C dI/dt=100A/us	---	41	---	ns
Qrr	Reverse Recovery Charge[3]		---	86	---	nc

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature

2.EAS condition:TJ=25℃,VDD=40V,VG=10V,RG=25Ω

3.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.5%, RG=25Ω, Starting TJ=25°C

Electrical Characteristics Diagrams

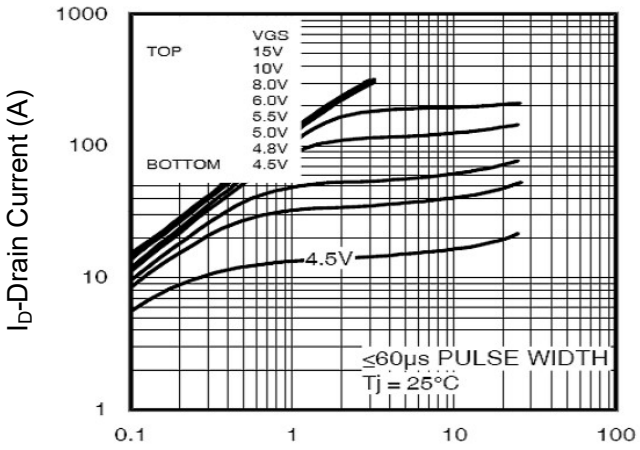


Figure1. Output Characteristics

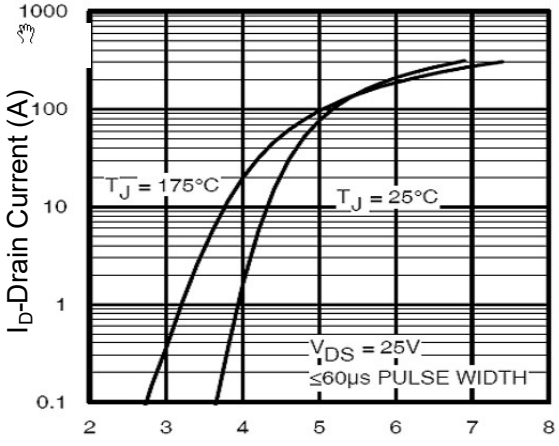


Figure2. Transfer Characteristics

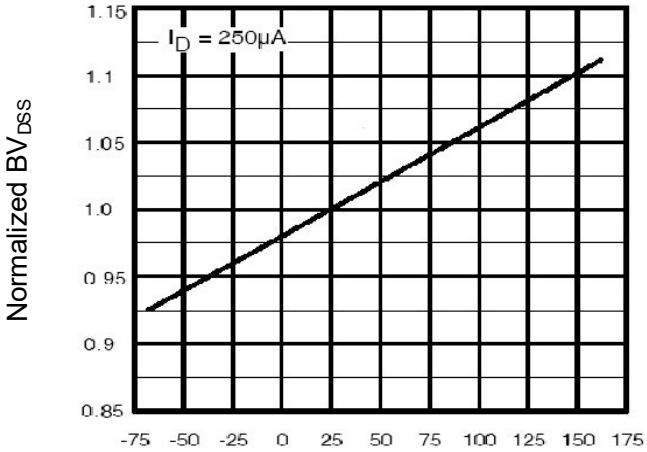


Figure3. BVDSS vs Junction Temperature

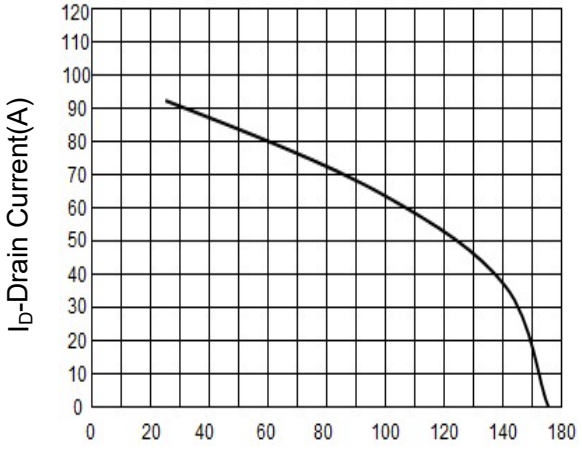


Figure4. ID vs Junction Temperature

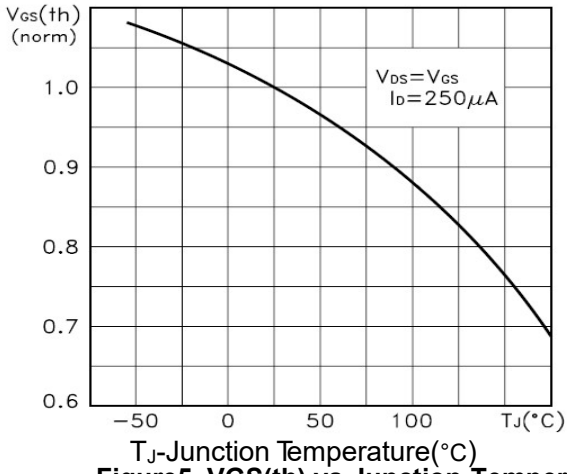


Figure5. VGS(th) vs Junction Temperature

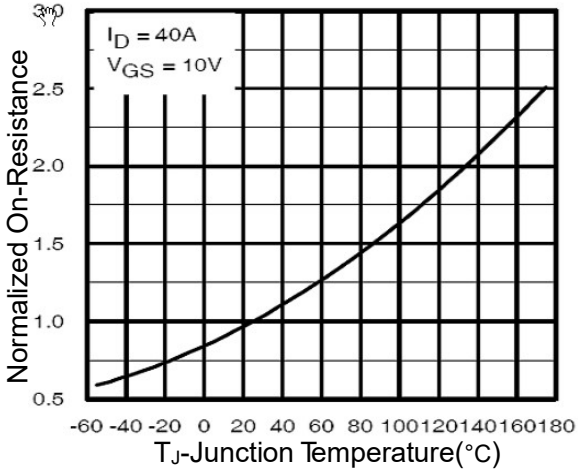


Figure6. Rdson Vs Junction Temperature

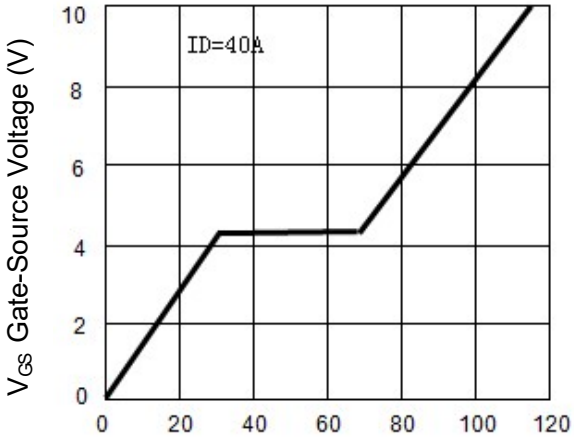


Figure7. Gate Charge

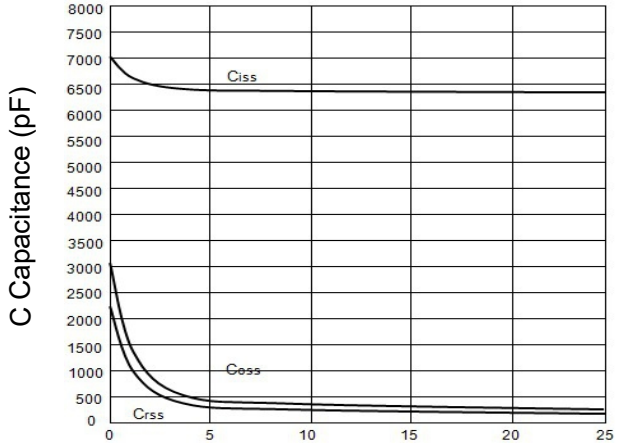


Figure8. Capacitance vs Vds

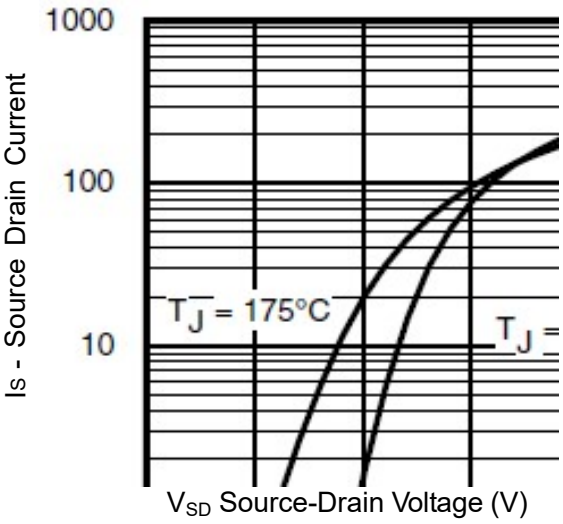


Figure9. Source- Drain Diode Forward

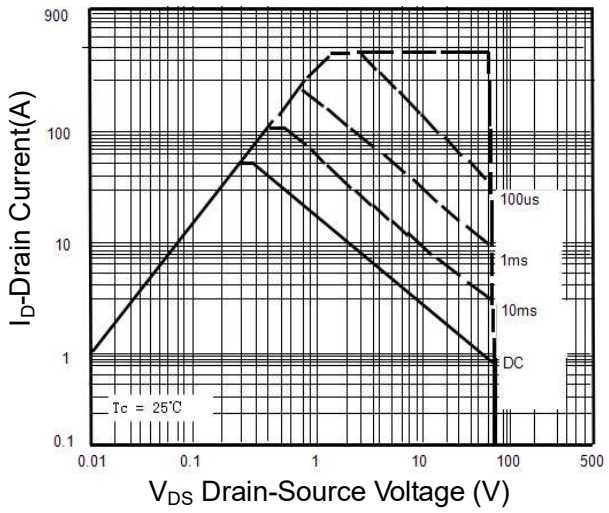


Figure10. Safe Operation Area

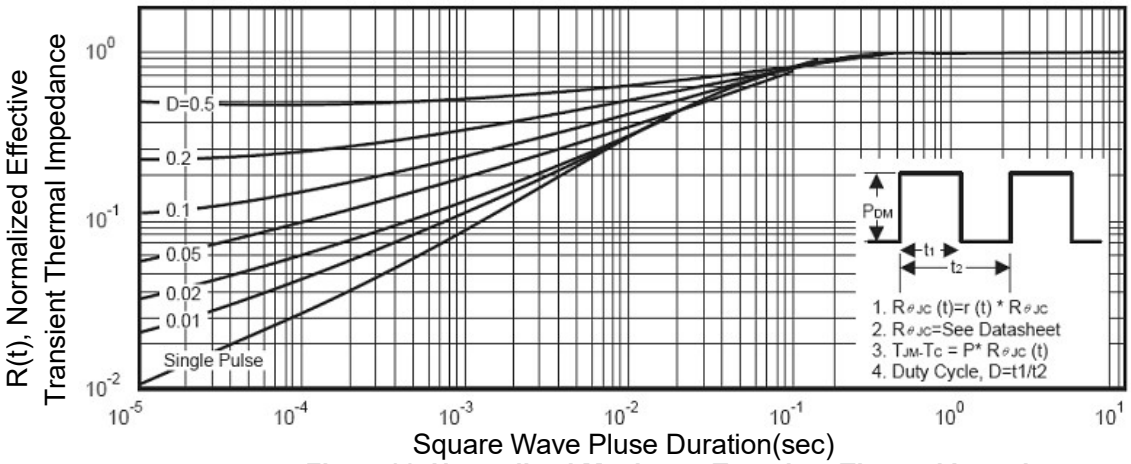
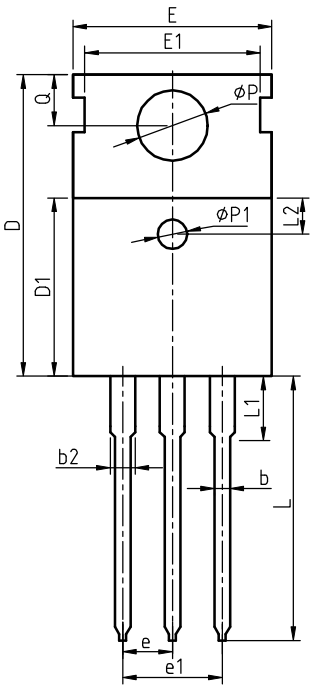
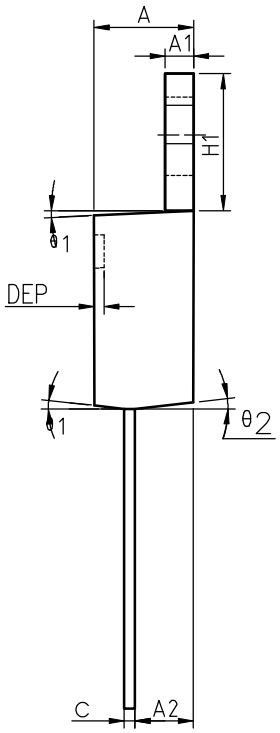


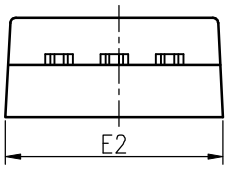
Figure11. Normalized Maximum Transient Thermal Impedance

Package Information

TO-220







COMMON DIMENSIONS

SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.27	1.30	1.33	0.050	0.051	0.052
A2	2.35	2.40	2.50	0.093	0.094	0.098
b	0.77	0.80	0.90	0.030	0.031	0.035
b2	1.17	1.27	1.36	0.046	0.050	0.054
c	0.48	0.50	0.56	0.019	0.020	0.022
D	15.40	15.60	15.80	0.606	0.614	0.622
D1	9.00	9.10	9.20	0.354	0.358	0.362
DEP	0.05	0.10	0.20	0.002	0.004	0.008
E	9.80	10.00	10.20	0.386	0.394	0.402
E1	-	8.70	-	-	0.343	-
E2	9.80	10.00	10.20	0.386	0.394	0.402
e		2.54	BSC		0.100	BSC
e1		5.08	BSC		0.200	BSC
H1	6.40	6.50	6.60	0.252	0.256	0.260
L	12.75	13.50	13.65	0.502	0.531	0.537
L1	-	3.10	3.30	-	0.122	0.130
L2		2.50	REF		0.098	REF
P	3.50	3.60	3.63	0.138	0.142	0.143
P1	3.50	3.60	3.63	0.138	0.142	0.143
Q	2.73	2.80	2.87	0.107	0.110	0.113
θ 1	5°	7°	9°	5°	7°	9°
θ 2	1°	3°	5°	1°	3°	5°
θ 3	1°	3°	5°	1°	3°	5°

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