

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

Advanced VD MOST Technology
 Low $R_{DS(ON)}$, Low gate charge, Fast switching

Applications

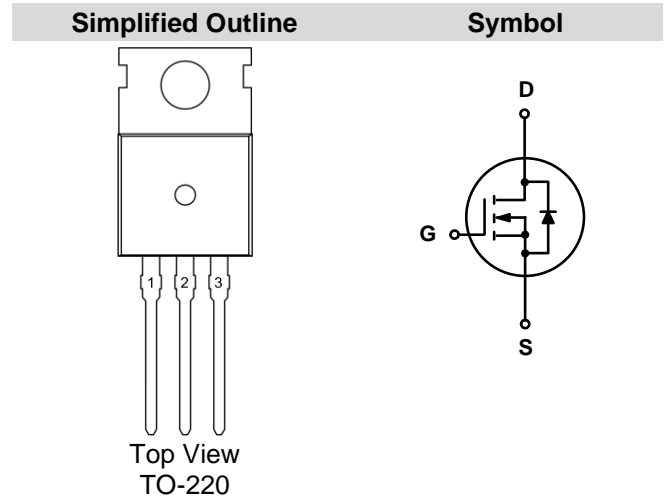
Consumer electronic power supply Motor control
 Synchronous-rectification Isolated DC
 Synchronous-rectification applications

Quick reference

$V_{DS} \geq 60V$
 $I_D \leq 80A$
 $R_{DS(ON)} \leq 12m\Omega @ V_{GS} = 10V$ (Type: 7.2m Ω)
 $R_{DS(ON)} \leq 15m\Omega @ V_{GS} = 4.5V$ (Type: 8.3m Ω)

Pin Description

Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ80N06C	TO-220	80N06 YWWXXX	YWWXXX: Date Code		1000

2. Absolute Maximum Ratings (TC=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ C$	Drain Current, $V_{GS} @ 10V$	80	A
$I_D @ T_C = 100^\circ C$	Drain Current, $V_{GS} @ 10V$	43	A
I_{DM}	Pulsed Drain Current ¹	272	A
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	104	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
R_{thj-c}	Maximum Thermal Resistance, Junction-case	1.2	°C/W
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	62.5	°C/W

3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
B _{VDS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =45A	-	7.2	12	mΩ
		V _{GS} =4.5V, I _D =30A	-	8.3	15	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.4	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =30A	-	71	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V, V _{GS} =0V	-	-	10	μA
	Drain-Source Leakage Current (T _J =125°C)	V _{DS} =48V, V _{GS} =0V	-	-	250	μA
I _{GSS}	Gate-Source Leakage	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge	I _D =30A	-	33	45	nC
Q _{gs}	Gate-Source Charge	V _{DS} =48V	-	5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	21	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V	-	10	-	ns
t _r	Rise Time	I _D =30A	-	43	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	47	-	ns
t _f	Fall Time	V _{GS} =10V	-	80	-	ns
C _{iss}	Input Capacitance		-	2680	3300	pF
C _{oss}	Output Capacitance	V _{GS} =0V	-	260	-	pF
C _{rss}	Reverse Transfer Capacitance	V _{DS} =25V f=1.0MHz	-	180	-	pF
V _{SD}	Forward On Voltage ²	I _S =45A, V _{GS} =0V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _S =10A, V _{GS} =0V, dI/dt=100A/μs	-	30	-	ns
Q _{rr}	Reverse Recovery Charge		-	18	-	nC

4. Electrical Characteristics Diagrams

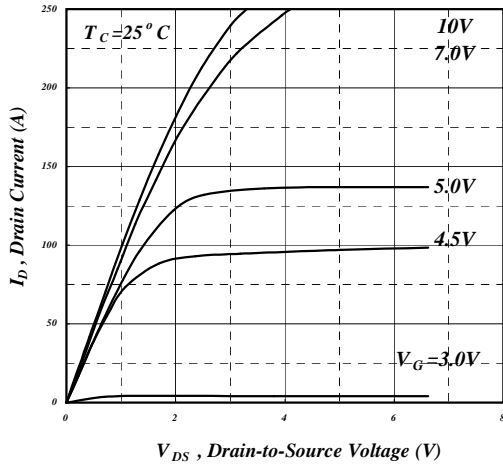


Fig 1. Typical Output Characteristics

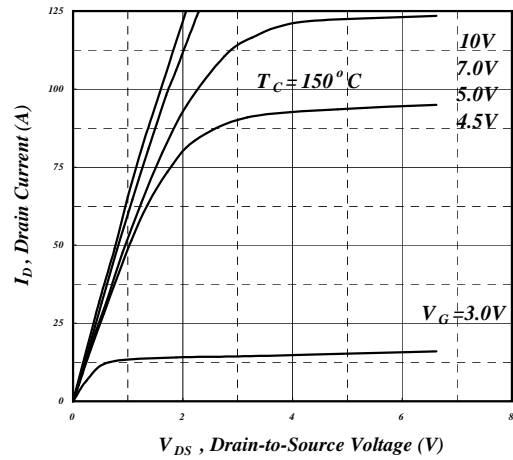


Fig 2. Typical Output Characteristics

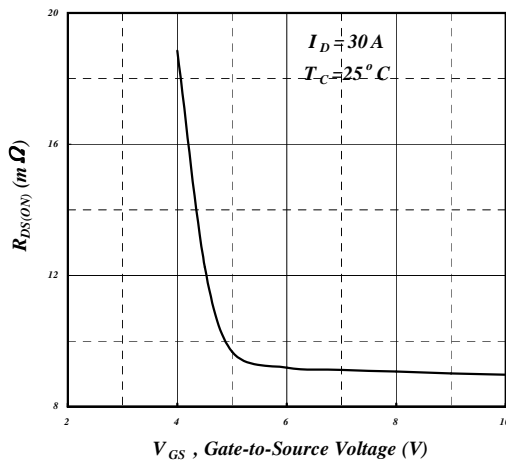


Fig 3. On-Resistance v.s. Gate Voltage

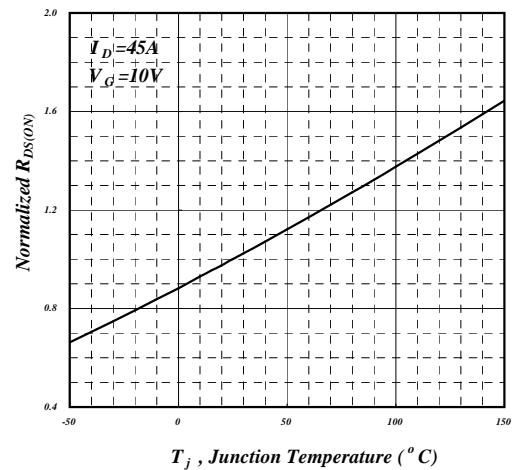


Fig 4. Normalized On-Resistance v.s. Junction Temperature

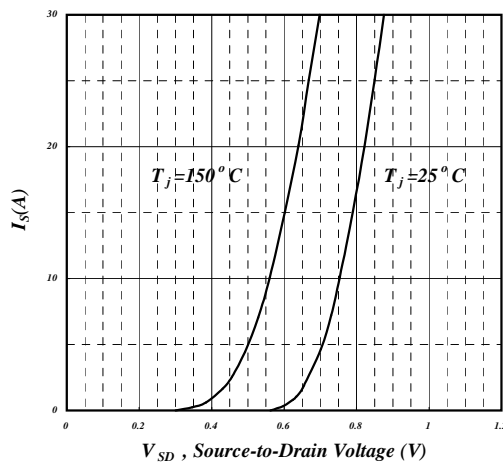


Fig 5. Forward Characteristic of Reverse Diode

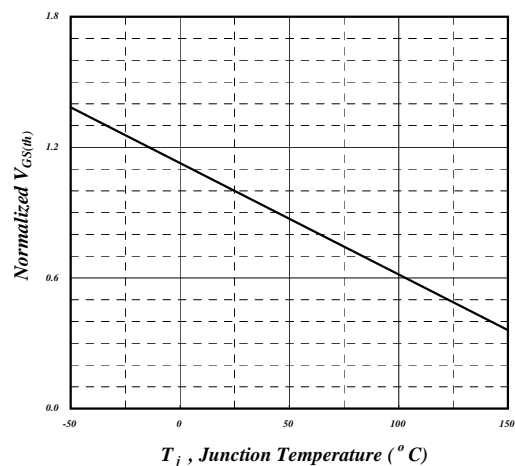


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

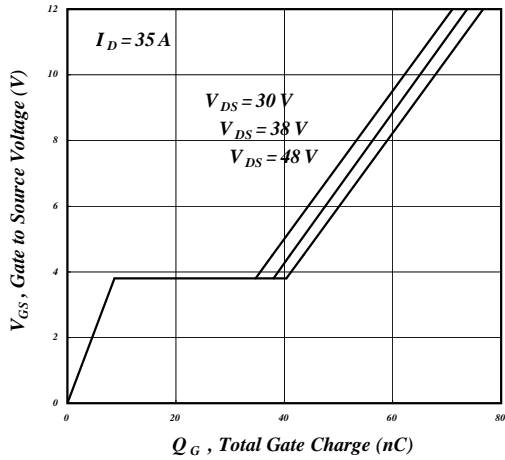


Fig 7. Gate Charge Characteristics

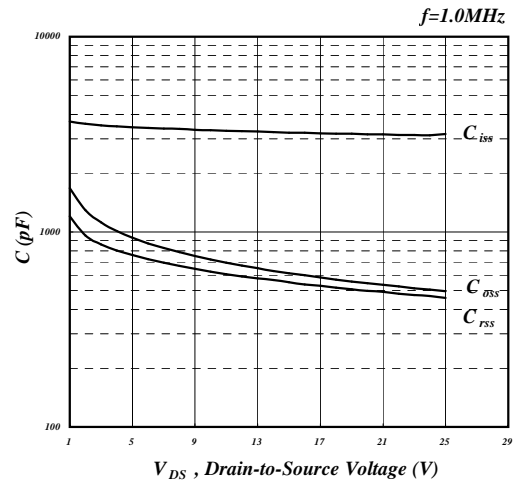


Fig 8. Typical Capacitance Characteristics

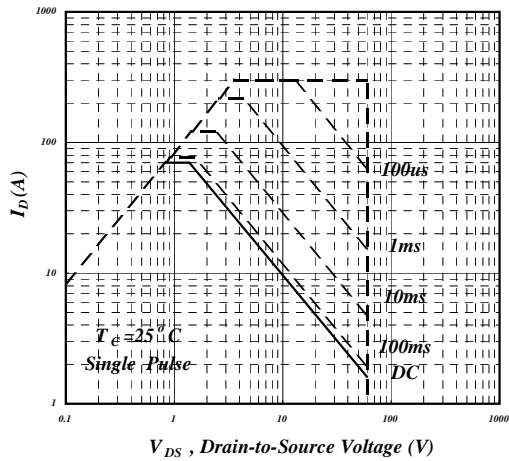


Fig 9. Maximum Safe Operating Area

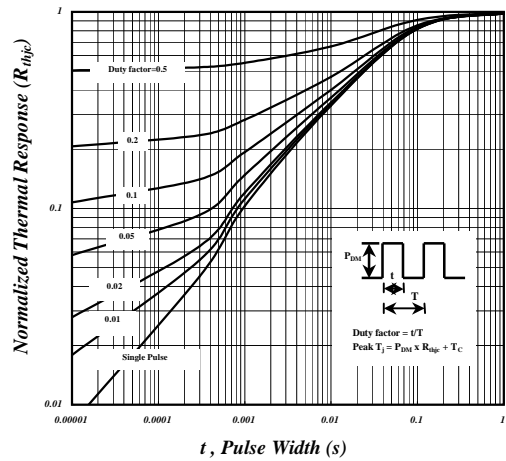


Fig 10. Effective Transient Thermal Impedance

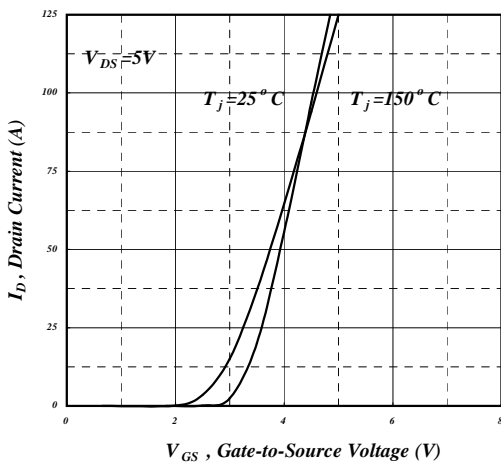


Fig 11. Transfer Characteristics

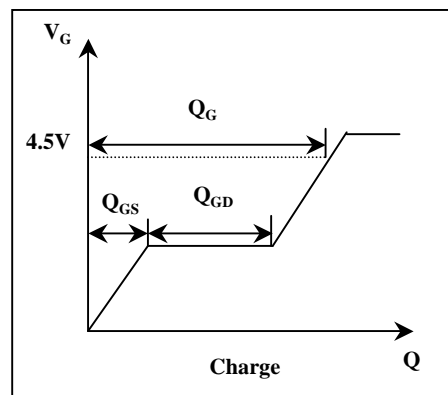
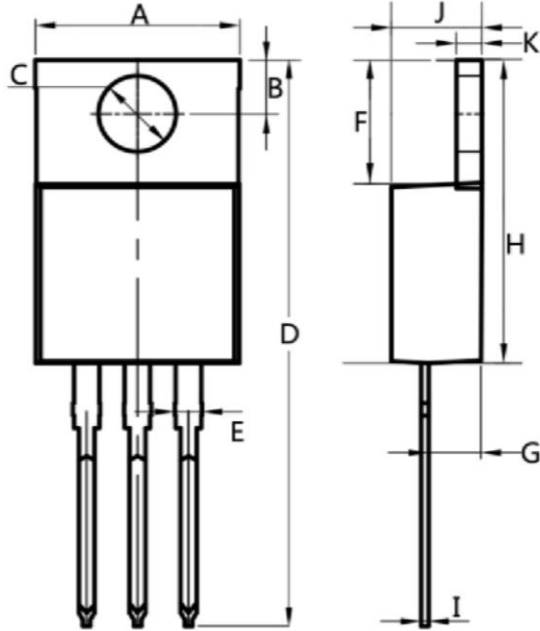


Fig 12. Gate Charge Waveform

5.Package Mechanical Data

TO-220-3L



Dim.	Min.	Max.
A	10.0	10.4
B	2.5	3.0
C	3.5	4.0
D	28.0	30.0
E	1.1	1.5
F	6.2	6.6
G	2.9	3.3
H	15.0	16.0
I	0.35	0.45
J	4.3	4.7
K	1.2	1.4
All Dimensions in millimeter		