XUANXINWEI 烜芯微

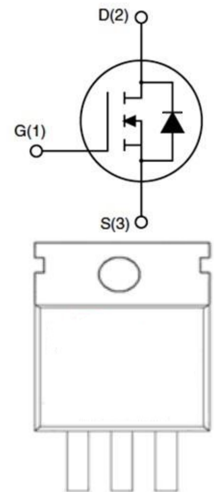
6N80

800V N-Channel Enhancement Mode MOSFET

General Description

6N80 use advanced Planar MOST technology to provide Hight EAS, low gate charge, fast switching

This device is specially designed to get better ruggedness and suitable to use in



Features

Hight EAS(on) & FOM

Extremely low switching loss

Excellent stability and uniformity or Invertors

Applications

Consumer electronic power supply Motor control

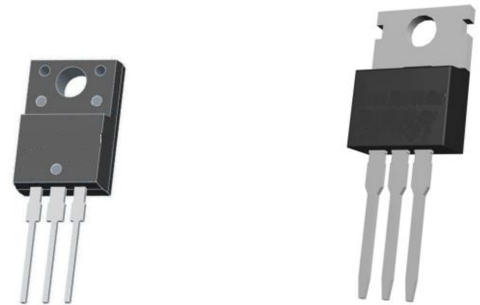
Synchronous-rectification Isolated DC

Synchronous-rectification applications

General Features

V_{DS} = 800V I_D =6 A

$R_{DS(ON)}$ < 1.5Ω @ V_{GS}=10V



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	800	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Drain Current, V_{GS} @ 10V[3]	6	A
I_{DM}	Pulsed Drain Current[1]	24	A
P_D@T_C=25℃	Total Power Dissipation	34.7	W
P_D@T_A=25℃	Total Power Dissipation	1.92	W
E_{AS}	Single Pulse Avalanche Energy[4]	18	mJ
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-c	Maximum Thermal Resistance, Junction-case	3.6	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient	65	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	800	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=3A	-	-	1.5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	2.5	-	4.5	V
g_{fs}	Forward Transconductance	V_{DS}=20V, I_D=3A	-	8	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=640V, V_{GS}=0V	-	-	100	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±30V, V_{DS}=0V	-	-	±1	uA
Q_g	Total Gate Charge	I_D=7A V_{DS}=640V V_{GS}=10V	-	41	65.6	nC
Q_{gs}	Gate-Source Charge		-	7	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	23	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=400V I_D=6A R_G=25Ω V_{GS}=10V	-	21	-	ns
t_r	Rise Time		-	41	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	110	-	ns
t_f	Fall Time		-	48	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=100V f=1.0MHz	-	1130	1808	pF
C_{oss}	Output Capacitance		-	56	-	pF
C_{rss}	Reverse Transfer Capacitance		-	12	-	pF
R_g	Gate Resistance	f=1.0MHz	-	2.8	5.6	Ω
V_{SD}	Forward On Voltage[2]	I_S=6A, V_{GS}=0V	-	-	1.5	V
t_{rr}	Reverse Recovery Time	I_S=7A, V_{GS}=0V dI/dt=100A/μs	-	500	-	ns
Q_{rr}	Reverse Recovery Charge		-	3.3	-	uC

Notes:

1.Pulse width limited by max. junction temperature.

2.Pulse test

3.Ensure that the junction temperature does not exceed T_{Jmax}..

4.Starting T_j=25°C , V_{DD}=90V , L=1mH , R_G=25Ω, V_{GS}=10V

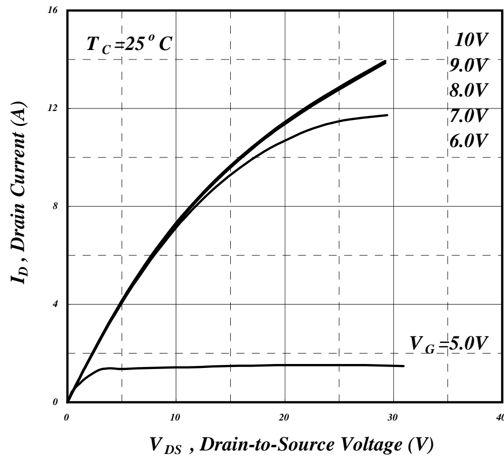


Fig 1. Typical Output Characteristics

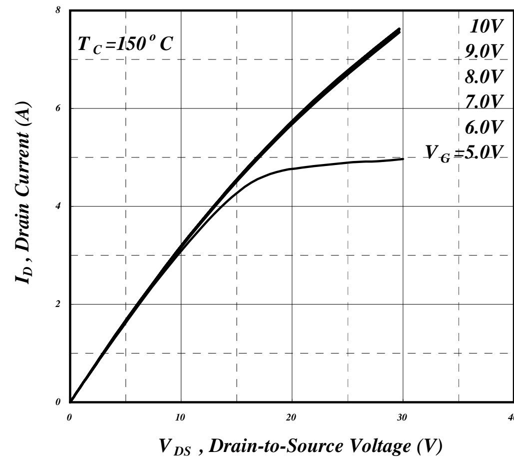


Fig 2. Typical Output Characteristics

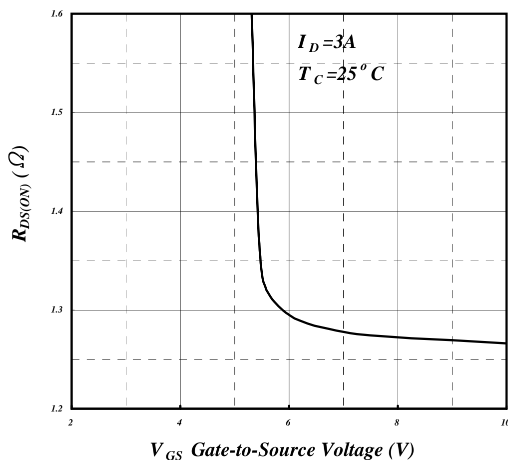


Fig 3. On-Resistance v.s. Gate Voltage

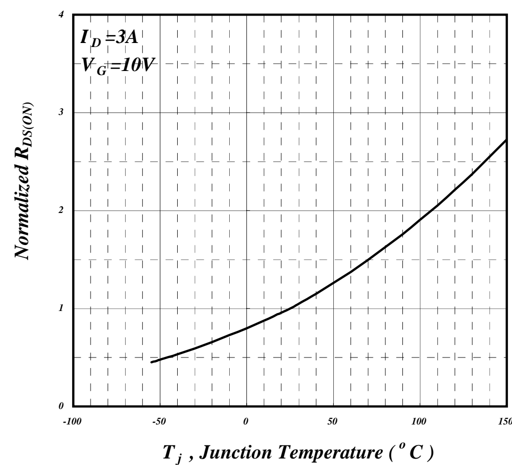


Fig 4. Normalized On-Resistance v.s. Junction Temperature

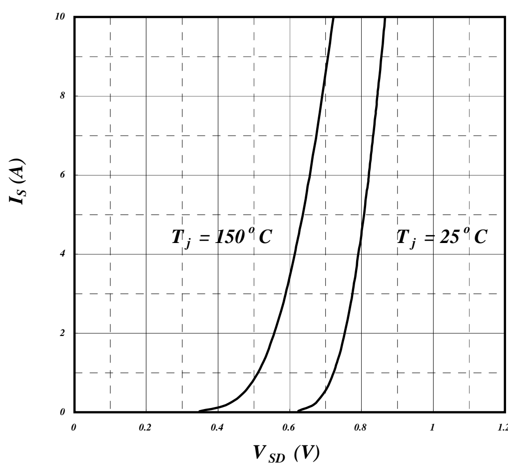


Fig 5. Forward Characteristic of Reverse Diode

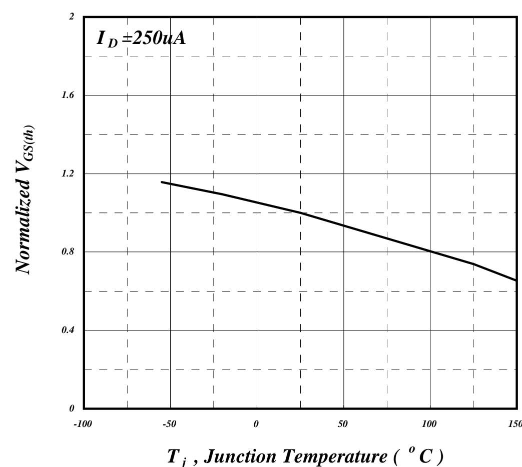


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

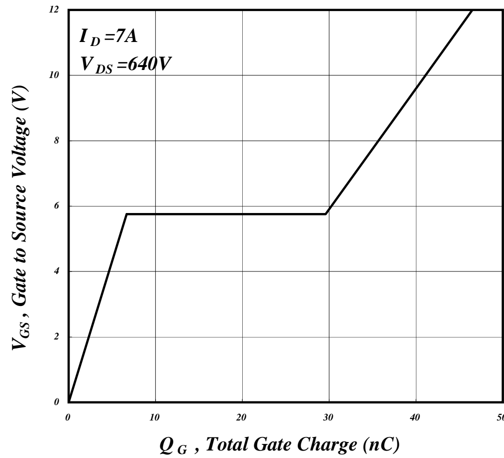


Fig 7. Gate Charge Characteristics

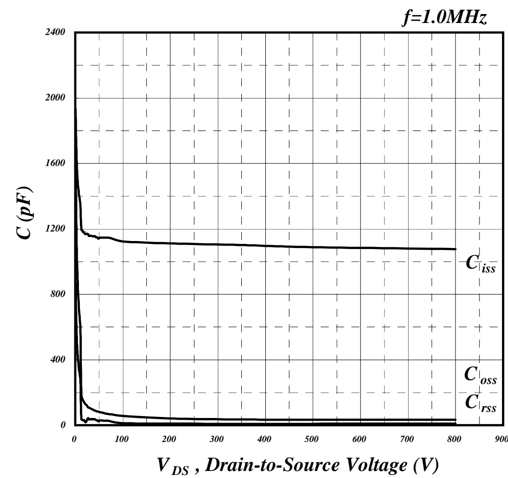


Fig 8. Typical Capacitance Characteristics

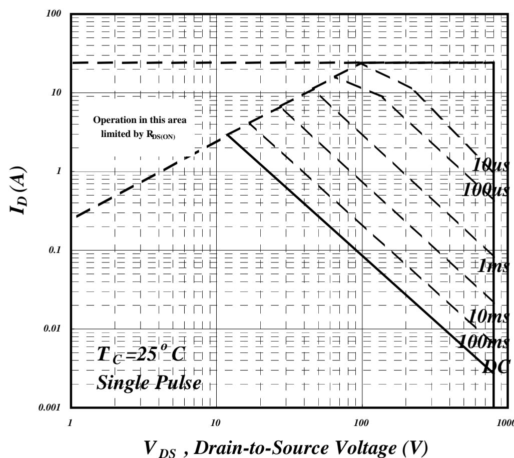


Fig 9. Maximum Safe Operating Area

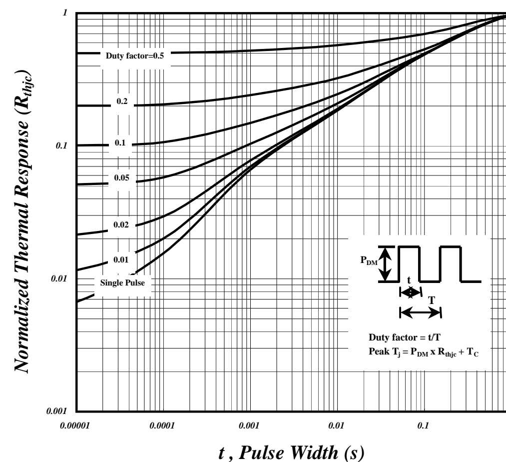


Fig10. Effective Transient Thermal Impedance

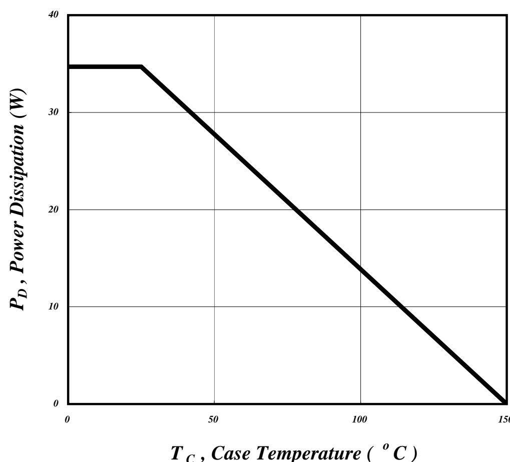


Fig 11. Total Power Dissipation

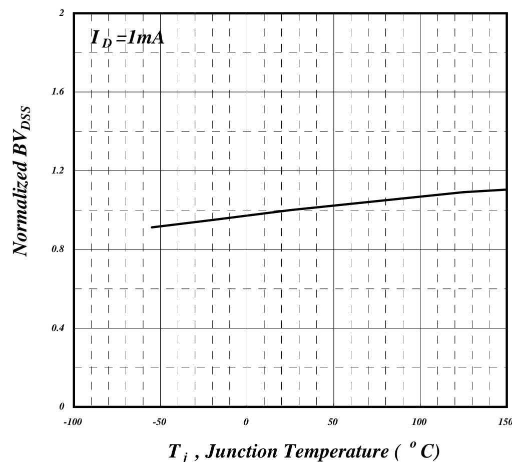
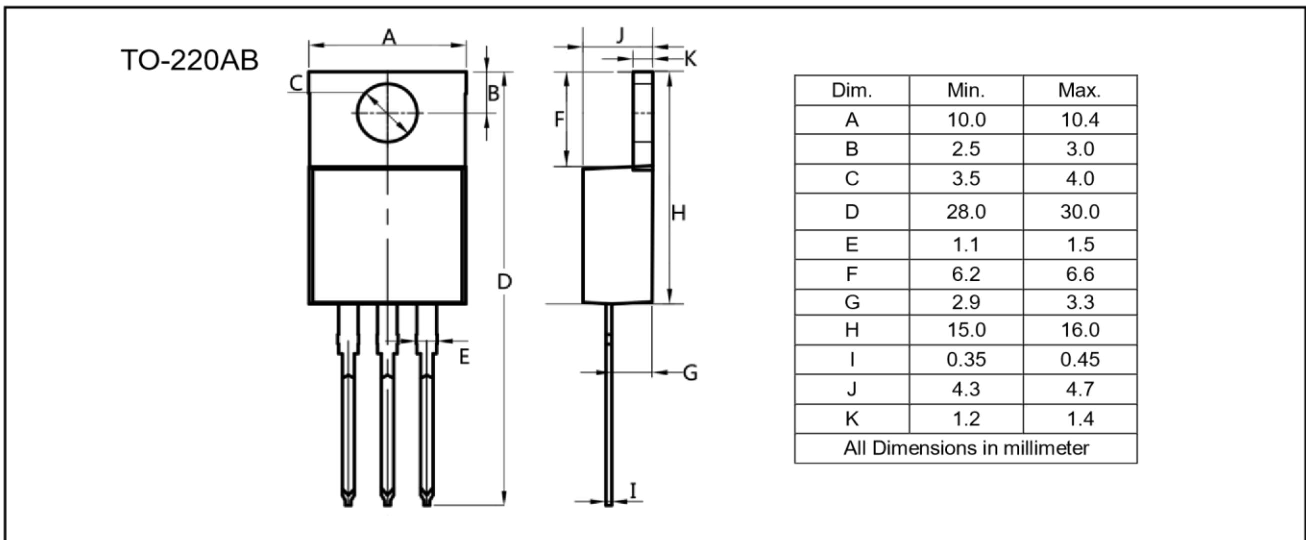
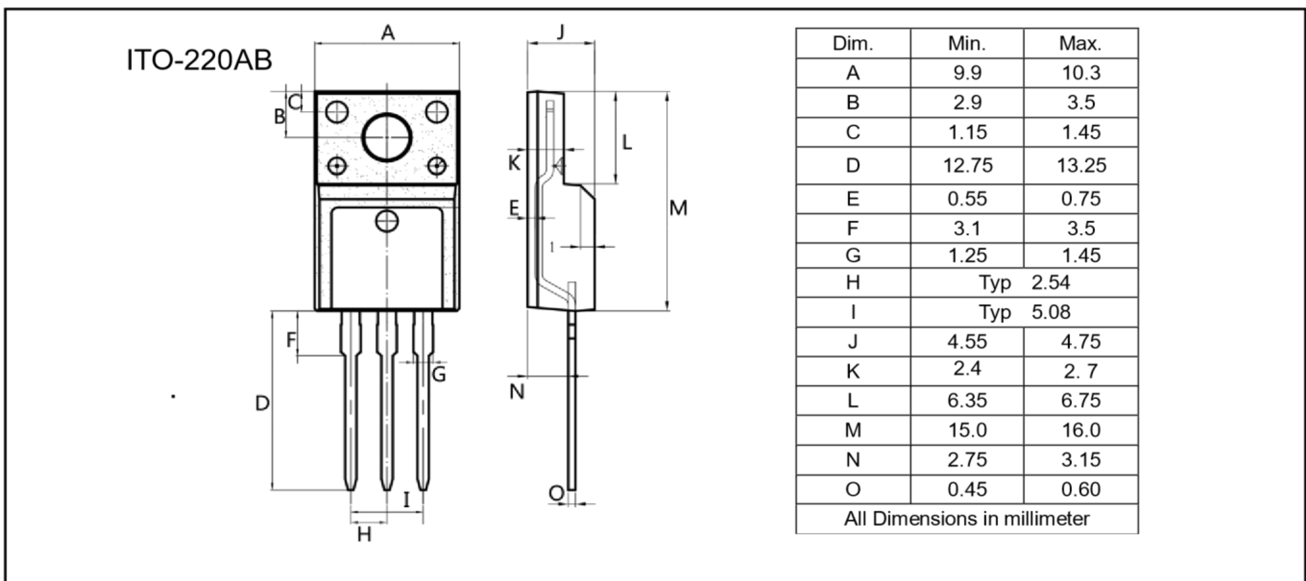


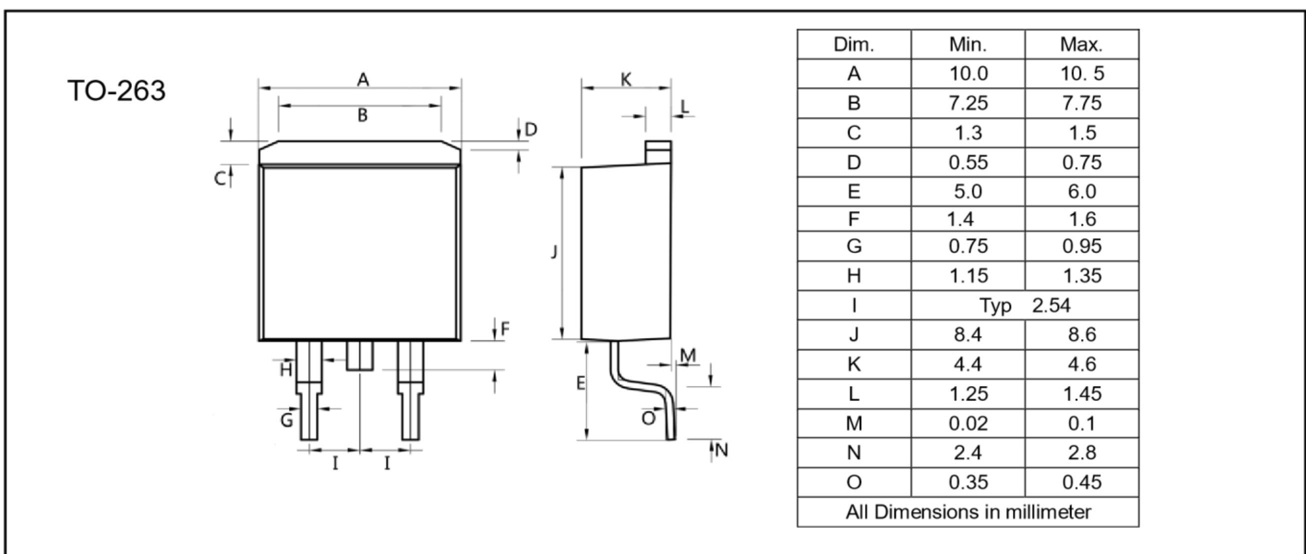
Fig 12. Normalized BV_{DSS} v.s. Junction Temperature



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		



Dim.	Min.	Max.
A	9.9	10.3
B	2.9	3.5
C	1.15	1.45
D	12.75	13.25
E	0.55	0.75
F	3.1	3.5
G	1.25	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.55	4.75
K	2.4	2. 7
L	6.35	6.75
M	15.0	16.0
N	2.75	3.15
O	0.45	0.60
All Dimensions in millimeter		



Dim.	Min.	Max.
A	10.0	10. 5
B	7.25	7.75
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.75	0.95
H	1.15	1.35
I	Typ 2.54	
J	8.4	8.6
K	4.4	4.6
L	1.25	1.45
M	0.02	0.1
N	2.4	2.8
O	0.35	0.45
All Dimensions in millimeter		