Features

- 500V/18A,
  $R_{DS\ (ON)}$=340mΩ(Typ.)@V_{GS}=10V
- 100% avalanche testedh t t d
- 175°C Operating Temperatur
- Lead Free and Green Devices Available (RoHS Compliant

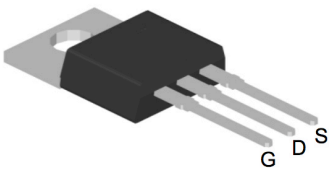
- Motor Drive
- Uninterruptible Power Supplie
- DC/DC converte
- General Purpose Application

Pb-Free RoHS HF Halogen-Free

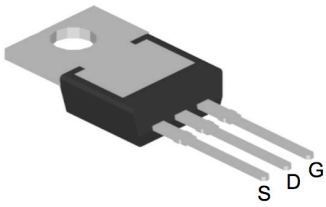
- **Pin Configurations**

TO220

Top View

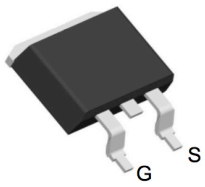


Bottom View

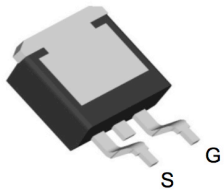


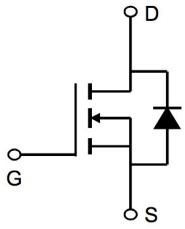
TO-263
D²PAK

Top View



Bottom View





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
XPX18N50TU	TO-263-3	XPX18N50TU XXX YYYY	800

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Value	Unit
VDSS	Drain-Source Voltage (V_{GS} = 0V)	500	V
ID	Continuous Drain Current	18	A
IDM	Pulsed Drain Current (note1)	58	A
VGS	Gate-Source Voltage	±30	V
E_{AS}	Single Pulse Avalanche Energy (note2)	452	mJ
IAR	Avalanche Current (note1)	14	A
E_{AR}	Repetitive Avalanche Energy note1)	60	mJ
P_D	Power Dissipation (T_C = 25ºC)	32	W
TJ, Tstg	Operating Junction and Storage Temperature Range	-55~+150	ºC
RthJC	Thermal Resistance, Junction-to-Case	4.12	ºC/W
RthJA	Thermal Resistance, Junction-to-Ambient	62.5	ºC/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
BVDSS	Drain-Source Breakdown Voltage	VGS = 0 V, ID = 250 μA	500	550		V
ΔBVDSS/ ΔTJ	Breakdown Voltage Temperature Coefficient	ID = 250 μA, Referenc ed to 25°C		0.52		V/°C
IDSS	Zero Gate Voltage Drain Current	VDS=500 V, VGS=0V			1	μA
		VDS=400 V, TC=125°C			10	μA
IGSSF	Gate-Body Leakage Current, Forward	VGS= 30V, VDS=0 V			100	nA
IGSSR	Gate-Body Leakage Current, Reverse	VGS=-30 V, VDS=0V			-100	nA
VGS(TH)	Gate Threshold voltage	VDS=VGS, ID=250 uA	2.0	3.0	4.0	V
RDS(On)	Drain-Source on-state resistance	VGS=10V, ID = 6.5A, TJ = 25°C		340	400	mΩ
gFS	Forward Transconductance	VDS = 40 V, ID=6.5A (Note 4)		12.8		S
Ciss	Input capacitance	VDS=25V, VGS=0V, f=1.0MHz		1651		pF
Coss	Output capacitance			188		pF
Crss	Reverse transfer capacitance			7		pF
td(on)	Turn On Delay Time	VDD= 250 V, ID =16 A, RG = 25 Ω		31		ns
tr	Rising Time			43		ns
td(off)	Turn Off Delay Time			106		ns
tf	Fall Time			46		ns
Qg	Total Gate Charge	VDS = 400 V, ID = 13 A, VGS = 10 V		23.5		nC
Qgs	Gate-Source Charge			6.9		nC
Qgd	Gate-Drain Charge			7.4		nC
ISM	Maximum Pulsed Drain-Source Diode Forward Current				52	A
VSD	Diode Forward Voltage	VGS= 0 V, IS = 13 A			1.2	V
trr	Reverse Recovery Time	VGS = 0 V, IS = 13 A, dIF / dt = 100 A/μs Note 4)		340		ns
Qrr	Reverse Recovery Charge			2.8		μC

Note :

1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2、The EAS data shows Max. rating . L=4.1Mh IAS=14A, VDD=50V, RG=25Ω, Starting TJ = 25 ºC

3、The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

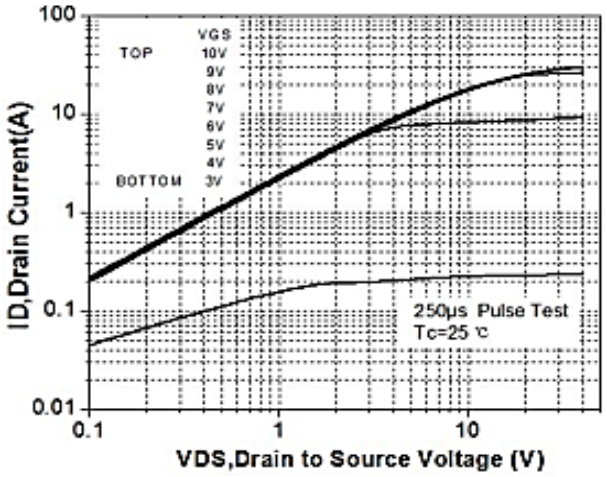


Figure 1. On-Region Characteristics

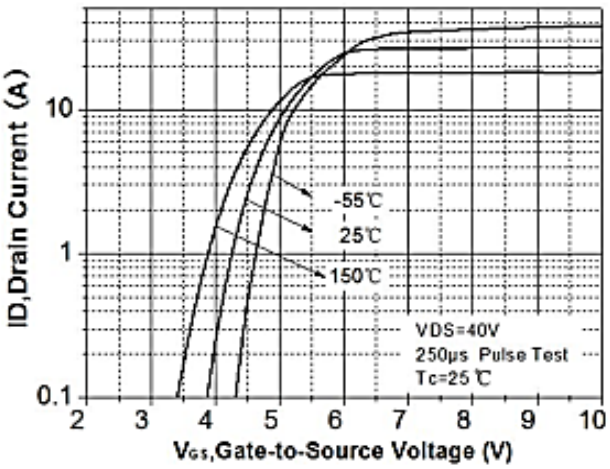


Figure 2. Transfer Characteristics

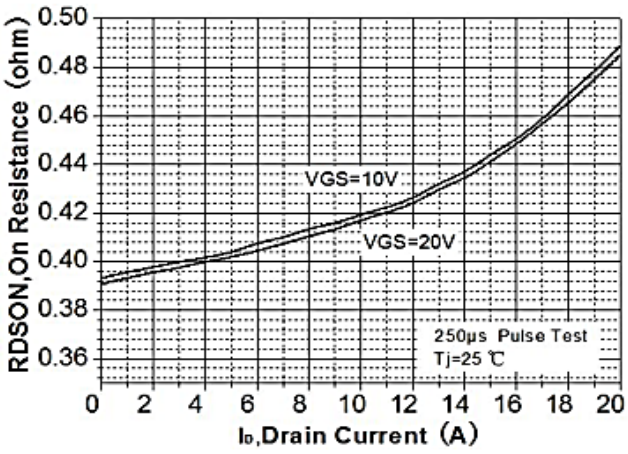


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

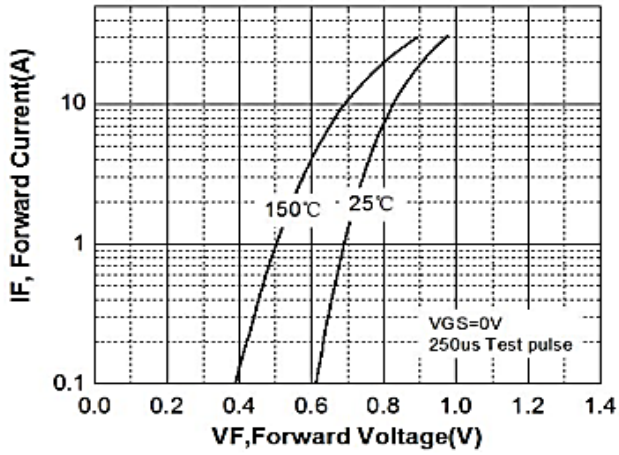


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

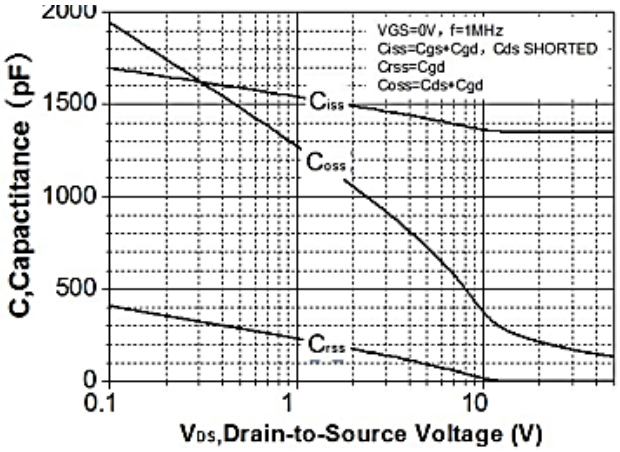


Figure 5. Capacitance Characteristics

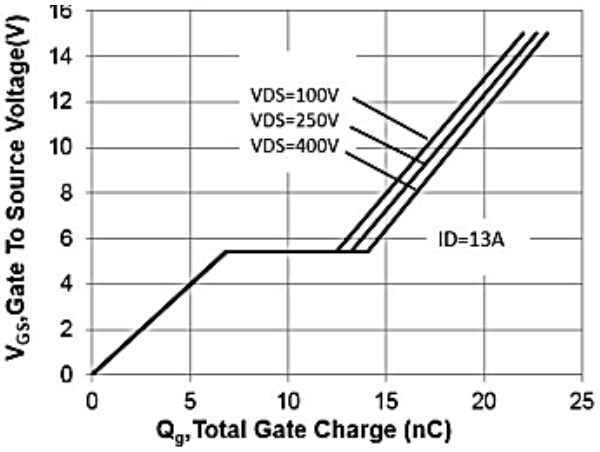


Figure 6. Gate Charge Characteristics

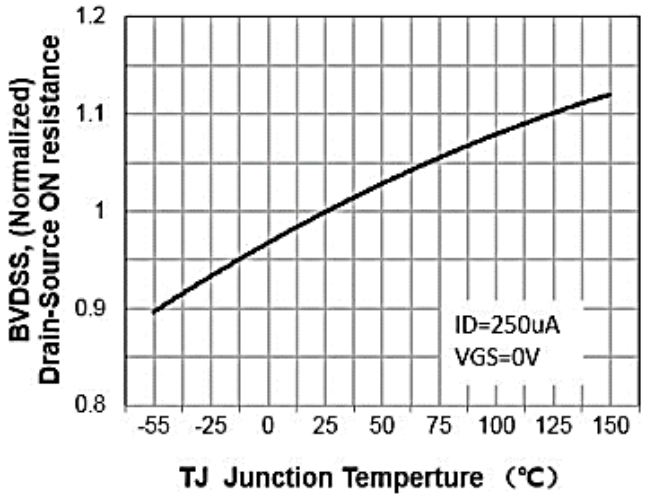


Figure 7. Breakdown Voltage Variation vs Temperature

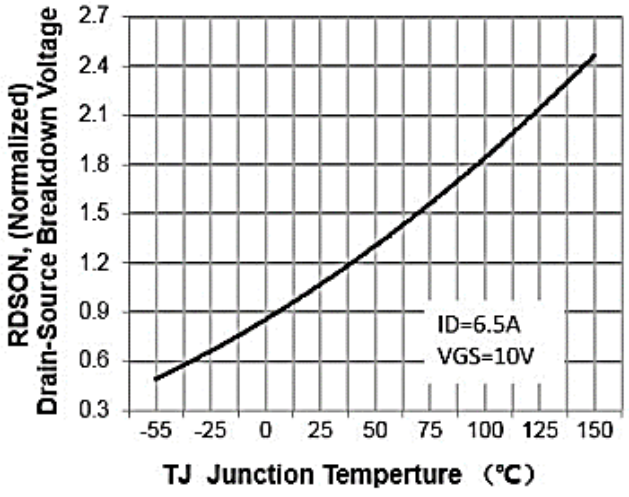


Figure 8. On-Resistance Variation vs Temperature

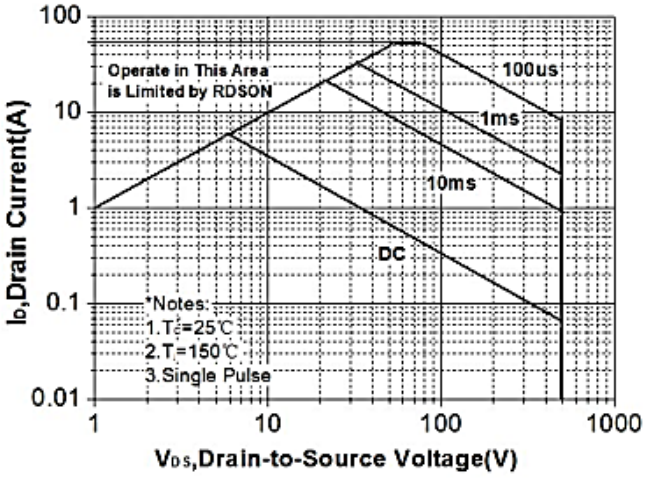


Figure 9. Maximum Safe Operating Area

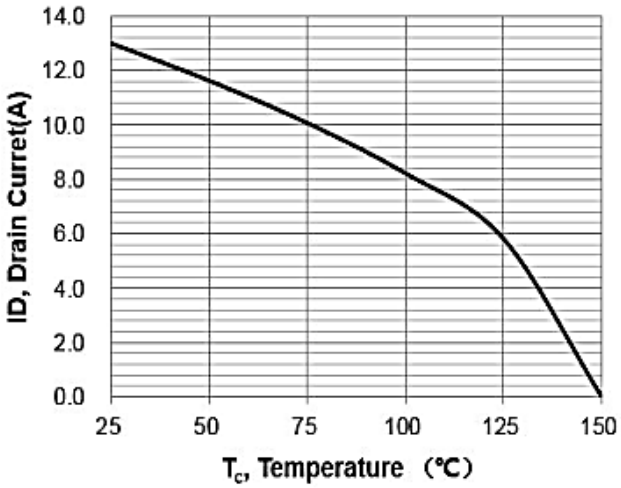


Figure 10. Maximum Drain Current vs Case Temperature

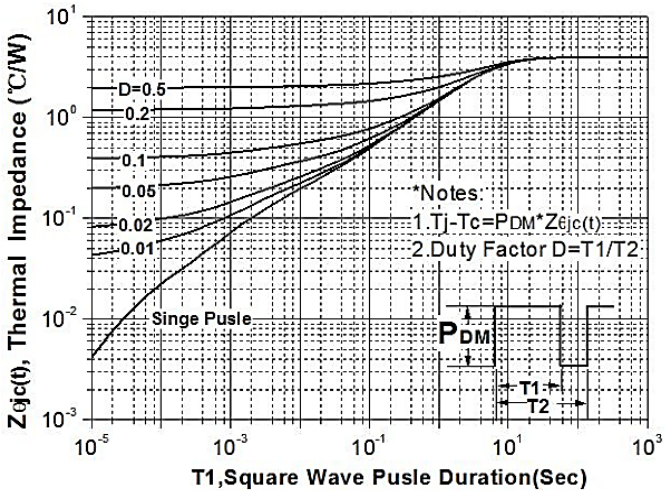


Figure 11. Transient Thermal Response Curve

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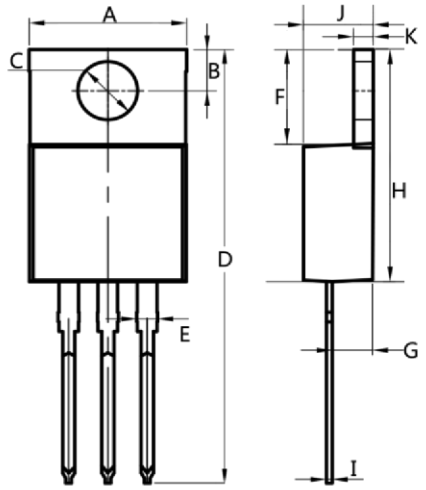
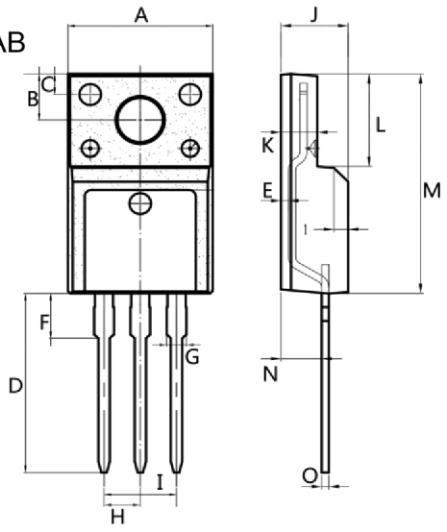


Dim.	Min.	Max.
A	10.0	10.4
B	2.5	3.0
C	3.5	4.0
D	28.0	30.0
E	1.1	1.5
F	6.2	6.6
G	2.9	3.3
H	15.0	16.0
I	0.35	0.45
J	4.3	4.7
K	1.2	1.4
All Dimensions in millimeter		

ITO-220AB



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		

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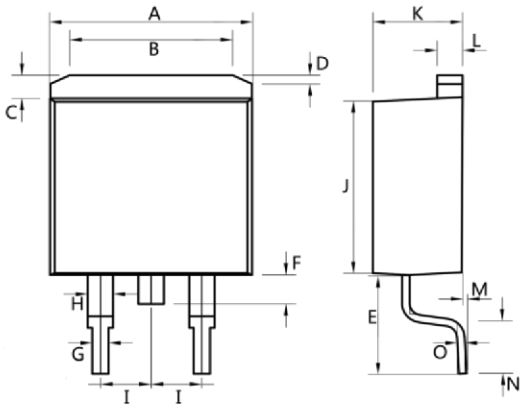

Dim.	Min.	Max.
A	10.0	10. 5
B	7.25	7.75
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.75	0.95
H	1.15	1.35
I	Typ 2.54	
J	8.4	8.6
K	4.4	4.6
L	1.25	1.45
M	0.02	0.1
N	2.4	2.8
O	0.35	0.45
All Dimensions in millimeter		

Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245℃±5℃	5sec±1sec
Pb-Free device	260℃+0/-5℃	5sec±1sec

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