-200V P-Channel Enhancement Mode MOSFET

Features

- Advanced HEFET™ Technology
- Ultra Low On-Resistance
- Excellent $Q_g x R_{DS(on)}$ Product
- 100% avalanche tested
- 175°C Operating Temperature
- Lead Free and Green Devices Available (RoHS Comp

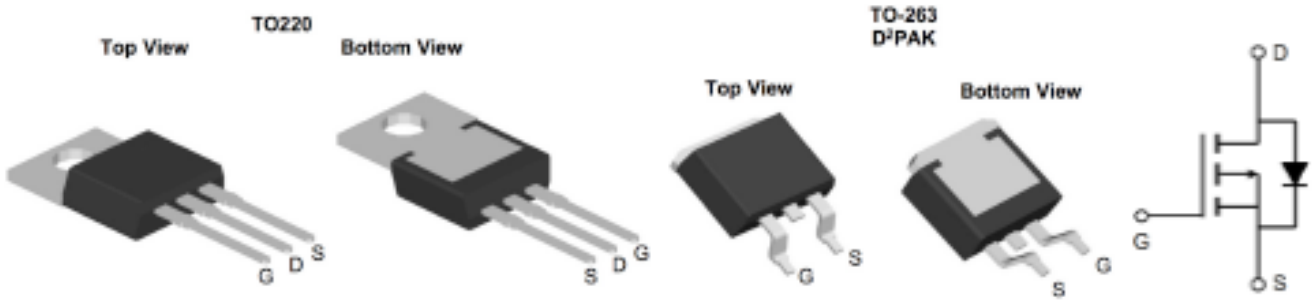
Applications

- Motor Drives
- Uninterruptible Power Supplies
- DC/DC converter
- General Purpose Applications

Pb-Free RoHS Halogen-Free

V_{DS} = -200V I_D =-20A

RDS(ON) <260mΩ @ VGS=10V



Product ID	Pack	Marking	Qty(PCS)
XPX20P20TU	TO-220-3L	XPX20P20TU XXX YYYY	1000
XPX20P20TU	TO-263-3L	XPX20P20TU XXX YYYY	800

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

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-200	V
VGS	Gate-Source Voltage	± 20	V
ID T_C = 25 °C	Continuous Drain Current	-20	A
ID T_C = 100 °C	Continuous Drain Current	-12	A
IDM	Pulsed Drain Current [a]	-65	A
EAS	Single Pulse Avalanche Energy [b]	1200	mJ
IAR	Repetitive Avalanche Current [a]	-15	A
P_D T_C = 25 °C	Maximum Power Dissipation	325	W
TJ, Tstg	Operating Junction and Storage Temperature Range	-55 to +150	°C
RthJA	Maximum Junction-to-Ambient	62	°C/W
RthJC	Maximum Junction-to-Case (Drain)	1.0	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VDS	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = -250 μA	-200	-254	-	V
VGS(th)	Gate-Source Threshold Voltage	V_{DS} = V_{GS}, I_D = -250 μA	-2.0	3.5	-5.0	V
IGSS	Gate-Source Leakage	V_{GS} = ± 20 V	-	-	± 100	nA
IDSS	Zero Gate Voltage Drain Current	V_{DS} = -200 V, V_{GS} = 0 V	-	-	100	μA
RDS(on)	Drain-Source On-State Resistance	V_{GS} = -10 V I_D = -5.5 A	-	260	320	mΩ
gfs	Forward Transconductance	V_{DS} = -50 V, I_D = -6.6 A	4.1	-	-	S
Ciss	Input Capacitance	V_{GS} = 0 V,V_{DS} = -25 V, f= 1.0 MHz,	-	2400	-	pF
Coss	Output Capacitance		-	740	-	pF
Crss	Reverse Transfer Capacitance		-	182	-	pF
Q_g	Total Gate Charge	V_{GS} = -10 V, I_D = -18A, V_{DS} = -160 V	-	-	88	nC
Q_{gs}	Gate-Source Charge		-	-	14.1	nC
Q_{gd}	Gate-Drain Charge		-	-	54	nC
td(on)	Turn-On Delay Time	V_{DD} = -100 V, I_D=-18A R_g = 9.1Ω,	-	28	-	ns
tr	Rise Time		-	86	-	ns
td(off)	Turn-Off Delay Time		-	78	-	ns
t_f	Fall Time		-	76	-	ns
R_g	Gate Input Resistance	f = 1MHz, open drain	0.3	-	1.7	Ω
VSD	Body Diode Voltage	T_J = 25 °C, I_S = -18A, V_{GS} = 0 V	-	-	-5	V
trr	Body Diode Reverse Recovery Time	T_J = 25 °C, I_F = -18A, dI/dt = 100 A/	-	500	600	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	5.8	7.2	μC

Note :

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

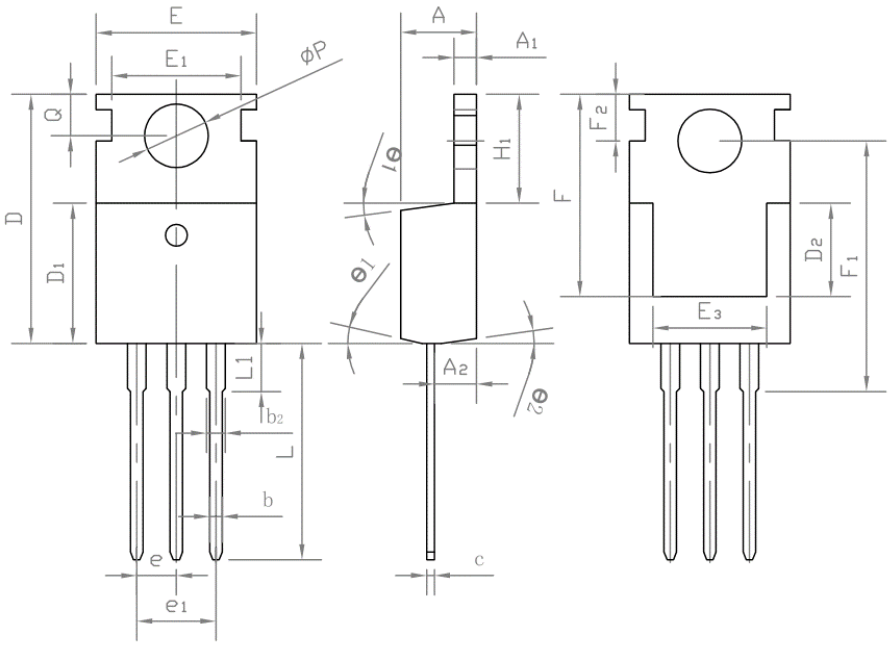
2、The EAS data shows Max. rating . IAS=-18A, VDD=50V, RG=25Ω, Starting TJ=25 ºC

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.

Package Mechanical Data-TO-220-3L-SLK



Symbol	Common		
	mm		
	Mim	Nom	Max
A	4.27	4.57	4.87
A1	1.15	1.30	1.45
A2	2.10	2.40	2.70
b	0.70	0.80	1.00
b2	1.17	1.27	1.50
D	0.40	0.50	0.65
D1	8.80	9.10	9.40
D2	5.70	6.70	7.00
E	9.70	10.00	10.30
E1	-	8.70	-
E2	9.63	10.00	10.35
E3	7.00	8.00	8.40
e		0.37	
e1		0.10	
H1	6.00	6.50	6.85
L	12.75	13.50	13.90
L1	-	3.10	3.40
Φp	3.45	3.60	3.75
Q	2.60	2.80	3.00
θ1	4°	7°	10°
θ2	0°	3°	6°
F	13.30	13.50	13.70
F1	15.50	15.90	16.30
F2	2.80	3.00	3.20

Flow (wave) soldering (solder dipping)

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

This integrated circuit can be damaged by ESD UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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