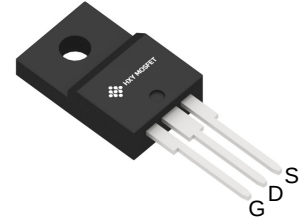




Description

The HXY20N65F can be used in various power switching circuit for system miniaturization and higher efficiency. The package form is TO-220F, which accords with the RoHS standard.



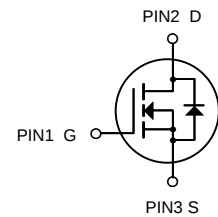
TO-220F

General Features

$V_{DS} = 650V, I_D = 20A$
 $R_{DS(ON)} < 0.45 \Omega @ V_{GS} = 10V$

Application

- Power switch circuit of adaptor and charger.



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Marking	Units Tube
20N65F	TO-220F	20N65 XXX YYYY	50

Absolute Maximum Ratings@ $T_J = 25^\circ C$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D @ T_C = 25^\circ C$	Drain Current, $V_{GS} @ 4.5V$	20	A
I_{DM}	Pulsed Drain Current ¹	80	A
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	65	W
TSTG	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$



Electrical Characteristics (Tc= 25℃ unless otherwise specified):

Symbo l	Parameters	Min	Typ	Max	Units	Conditions
Static Characteristics						
B _{VDS}	Drain-Source Breakdown VoltageCurrent (Note 1)	650	--	--	mA	I _D =250μA, V _{GS} =0V, T _J =25℃
V _{GS(th)}	Gate Threshold Voltage	2.0	--	4.0	V	V _{DS} =V _{GS} , I _D =250μA
R _{DS(on)}	Drain-Source On-Resistance	--	0.38	0.45	Ω	V _{GS} =10V, I _D =10A
I _{GSS}	Gate-Body Leakage Current	--	--	±100	nA	V _{GS} =±30V, V _{DS} =0
I _{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	V _{DS} =650V, V _{GS} =0
g _{fs}	Forward Transconductance	12.0	--	--	S	V _{DS} =30V, I _D =10A
Switching Characteristics						
T _{d(on)}	Turn-On Delay Time	--	35	--	ns	V _{DS} =325V, I _D =20A, R _G =25Ω (Note 2)
T _r	Rise Time	--	55	--	ns	
T _{d(off)}	Turn-Off Delay Time	--	120	--	ns	
T _f	Fall Time	--	50	--	ns	
Q _g	Total Gate Charge	--	70	--	nC	V _{DS} =480V , V _{GS} =10V, I _D =20A (Note 2)
Q _{gs}	Gate-Source Charge	--	19	--	nC	
Q _{gd}	Gate-Drain Charge	--	28	--	nC	



Dynamic Characteristics						
C _{iss}	Input Capacitance	--	2500	3095	pF	V _{DS} =25V, V _{GS} =0, f=1MHz
C _{oss}	Output Capacitance	--	280	385	pF	
C _{rss}	Reverse Transfer Capacitance	--	23.6	35.5	pF	
I _S	Continuous Drain-Source Diode Forward Current (Note 2)	--	--	20	A	
V _{SD}	Diode Forward On-Voltage	--	--	1.3	V	I _S =10A, V _{GS} =0
R _{th(j-c)}	Thermal Resistance, Junction to Case	--	--	1.9	°C/W	

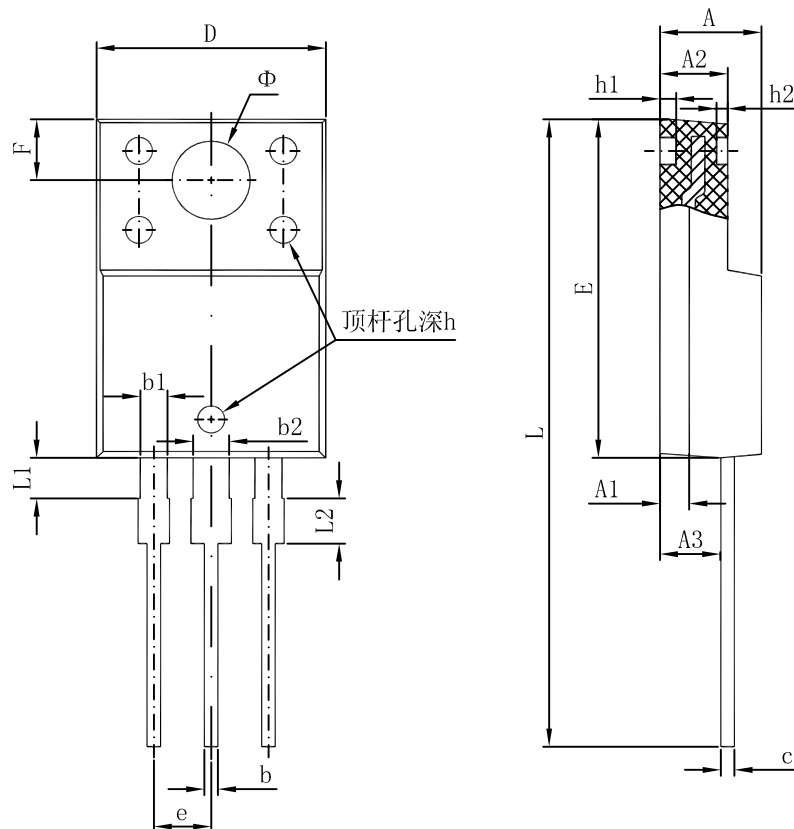
Note 1: Repetitive Rating : Pulse width limited by maximum junction temperature

Note 2: Pulse test: PW ≤ 300us , duty cycle ≤ 2%.



Package Information

TO-220F



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	1.900	2.100	0.075	0.083



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