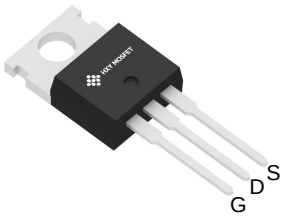
Description

The HXY5N40P can be used in various power swithching circuit for system miniaturization and higher efficiency.The package form is TO-220C, which accords with the RoHS standard.



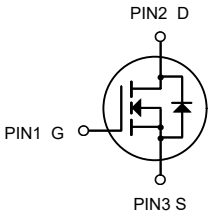
TO-220C

General Features

V_{DS} = 400V,I_D = 5.5A
$R_{DS(ON)}$ < 1Ω@ V_{GS}=10V

Application

● Power switch circuit of adaptor and charger.



N-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Units Tube
HXY5N40P	TO-220C	HXY MOSFET	50

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

Symbol	Parameter	Limit	Unit
V_{DSS}	Drain-to-Source Voltage[1]	400	V
V_{GSS}	Gate-to-Source Voltage	±30	
I_D	Continuous Drain Current	5.5	A
$I_{D\ @\ Tc=100°C}$	Continuous Drain Current @ Tc=100°C	3.5	
I_{DM}	Pulsed Drain Current at V_{GS}=10V[2]	22	
E_{AS}	Single Pulse Avalanche Energy	290	mJ
T_J& T_{STG}	Operating and Storage Temperature Range	-55 to 150	°C
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.9	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	62.5	

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

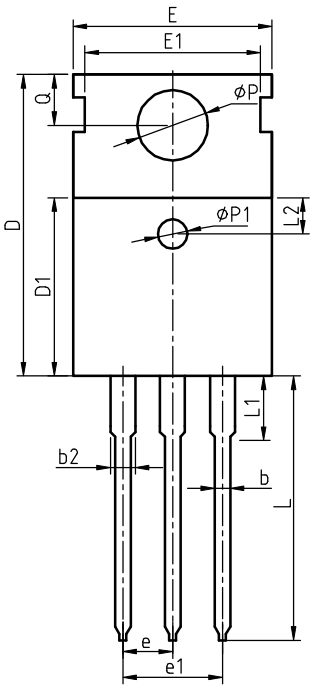
Electrical Characteristics T_J=25°C unless otherwise specified

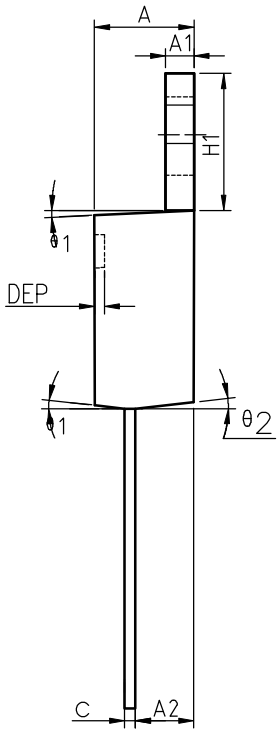
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	400			V
Gate-threshold voltage	$V_{(GS)th}$	V_{DS}=V_{GS}, I_D=250μA	2		4	
Gate-body leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=400V, V_{GS}=0V			25	μA
		V_{DS}=320V,V_{GS}=0V,T_j=125°C			250	
Drain-source on-resistance (note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=3.3A		0.92	1.0	Ω
Forward transconductance (note 4)	g_{fs}	V_{DS}=50V, I_D=3.3A	2.9			S
Diode forward voltage	V_{SD}	I_S=5.5A, V_{GS}=0V			1.6	V
Total gate charge	Q_g	V_{DS}=320V, V_{GS}=10V,I_D=3.5A			38	nC
Gate-source charge	Q_{gs}				5.7	
Gate-drain charge	Q_{gd}				22	
Input capacitance (note 5)	C_{iss}	V_{DS}=25V, V_{GS}=0V,f=1MHz		700		pF
Output capacitance (note 5)	C_{oss}			170		
Reverse transfer capacitance (note 5)	C_{rss}			64		
Turn-on time(note 4 ,5)	$t_{d(on)}$	V_{DD}=200V,R_D=57Ω, I_D=3.5A, R_G=12Ω		10		ns
Rise tme(note 4,5)	t_r			15		
Turn-off tme(note 4,5)	$t_{d(off)}$			38		
Fall time(note 4 ,5)	t_f			14		

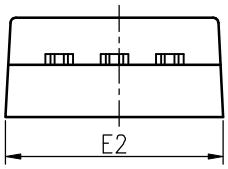
Notes:

1. Repetitive Rating ;Pulse width limited by maximum junction temperature.
2. L=16mH, I_{AS} =5.5A, V_{DD}=50V, R_G=25Ω, starting T_J = 25°C.
3. I_{SD}≤5.5A, di/dt≤90A/μs, V_{DD}≤$V_{(BR)DSS}$, T_J≤150°C.
4. Pulse width≤300μs, Duty cycle≤2%.
5. These parameters have no way to verify.

Package Information
TO-220C







COMMON DIMENSIONS

SYMBOL	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.27	1.30	1.33	0.050	0.051	0.052
A2	2.35	2.40	2.50	0.093	0.094	0.098
b	0.77	0.80	0.90	0.030	0.031	0.035
b2	1.17	1.27	1.36	0.046	0.050	0.054
c	0.48	0.50	0.56	0.019	0.020	0.022
D	15.40	15.60	15.80	0.606	0.614	0.622
D1	9.00	9.10	9.20	0.354	0.358	0.362
DEP	0.05	0.10	0.20	0.002	0.004	0.008
E	9.80	10.00	10.20	0.386	0.394	0.402
E1	-	8.70	-	-	0.343	-
E2	9.80	10.00	10.20	0.386	0.394	0.402
e		2.54	BSC		0.100	BSC
e1		5.08	BSC		0.200	BSC
H1	6.40	6.50	6.60	0.252	0.256	0.260
L	12.75	13.50	13.65	0.502	0.531	0.537
L1	-	3.10	3.30	-	0.122	0.130
L2		2.50	REF		0.098	REF
P	3.50	3.60	3.63	0.138	0.142	0.143
P1	3.50	3.60	3.63	0.138	0.142	0.143
Q	2.73	2.80	2.87	0.107	0.110	0.113
θ1	5°	7°	9°	5°	7°	9°
θ2	1°	3°	5°	1°	3°	5°
θ3	1°	3°	5°	1°	3°	5°

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