TK31N60X-OSEN

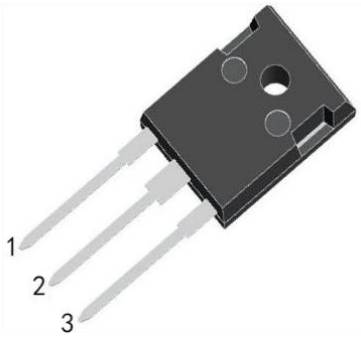
600V N-CHANNEL MOSFET

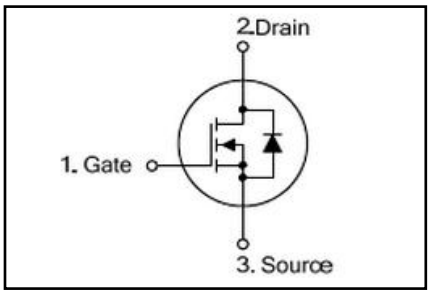
◆ Features：

- ✧ Fast switching speed
  开关速度快
- ✧ High input impedance and low level drive
  高输入阻抗和低电平驱动
- ✧ Avalanche energy tested
  雪崩能量测试
- ✧ Improved dv/dt capability，high ruggedness
  提高 dv/dt 能力，高耐用性

RoHS COMPLIANT

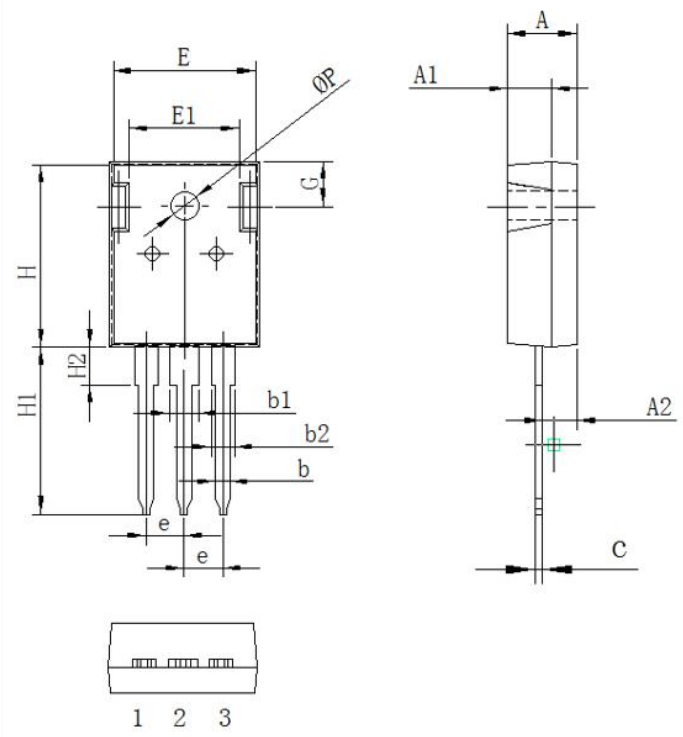
TO-247H





◆ Applications

- ✧ High efficiency switch mode power supplies
  高效率开关电源
- ✧ Power factor correction
  功率因数校正
- ✧ Electronic lamp ballast
  电子整流器



基本尺寸

Symbol	单位 mm		
	Min	Nom	Max
A	4.8	5.00	5.20
A1	3.3	3.5	3.7
A2	2.20	2.40	2.60
b	1.00	1.2	1.40
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	15.2	15.7	16.2
E1	10.2	10.7	11.2
H	20.8	21	21.2
H1	19.5	20.0	20.5
H2	4.00	4.20	4.40
G	5.60	5.80	600
ΦP	3.30	3.50	3.70

◆ Absolute Maximum Ratings (Tc=25°C)

Symbol	Parameters	Ratings	Unit
V_{DSS}	Drain-Source Voltage 漏源电压	**600**	V
V_{GS}	Gate-Source Voltage-Continuous 栅源电压	**±30**	V
I_D	Drain Current-Continuous（Note 2） 漏极持续电流	**30.8**	A
I_{DM}	Drain Current-Single Plused（Note 1） 漏极单次脉冲电流	**123**	A
P_D	Power Dissipation （Note 2） 功率损耗	**230**	W
T_j	Max.Operating junction temperature 最大结温	**150**	℃

◆ Electrical characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameters	Min	Typ	Max	Units	Conditions
Static Characteristics						
B_{VDSS}	Drain-Source Breakdown Voltage Current （Note 1） 漏极击穿电压	**600**	--	--	V	I_D=250uA，V_{GS}=0V，T_J=25°C
$V_{GS(th)}$	Gate Threshold Voltage 栅极开启电压	**3.0**	--	**4.5**	V	V_{DS}=V_{GS}，I_D=250uA
$R_{DS(on)}$	Drain-Source On-Resistance 漏源导通电阻	--	**0.073**	**0.088**	Ω	V_{GS}=10V，I_D=9.4A
I_{GSS}	Gate-Body Leakage Current 栅极漏电流	--	--	**±100**	nA	V_{GS}=±30V，V_{DS}=0
I_{DSS}	Zero Gate Voltage Drain Current 零栅极电压漏极电流	--	--	**1**	μA	V_{DS}=600V，V_{GS}=0
gfs	Forward Trans conductance 正向跨导	--	**25**	--	S	V_{DS}=10V，I_D=22A

Switching Characteristics						
$T_{d(on)}$	Turn-On Delay Time 开启延迟时间	--	**59**	--	ns	V_{DS}=400V， I_D=15.4A， R_G=10Ω（Note 2）
T_r	Rise Time 上升时间	--	**26**	--	ns	
$T_{d(off)}$	Turn-Off Delay Time 关闭延迟时间	--	**134**	--	ns	
T_f	Fall Time 下降时间	--	**8.8**	--	ns	
Q_g	Total Gate Charge 栅极总电荷	--	**67**	--	nC	V_{DS}=400V， V_{GS}=10V， I_D=30.8A（Note 2）
Q_{gs}	Gate-Source Charge 栅源极电荷	--	**21**	--	nC	
Q_{gd}	Gate-Drain Charge 栅漏极电荷	--	**27**	--	nC	
Dynamic Characteristics						
C_{iss}	Input Capacitance 输入电容	--	**3900**	--	pF	V_{DS}=25V，V_{GS}=0， f=1MHz
C_{oss}	Output Capacitance 输出电容	--	**380**	--	pF	
C_{rss}	Reverse Transfer Capacitance 反向传输电容	--	**10**	--	pF	
I_S	Continuous Drain-Source Diode Forward Current（Note 2） 二极管导通正向持续电流	--	--	**30.8**	A	
V_{SD}	Diode Forward On-Voltage 二极管正向导通电压	--	--	**1.3**	V	I_S=21A，V_{GS}=0
$R_{th(j-c)}$	Thermal Resistance, Junction to Case 结到外壳的热阻	--	--	**0.54**	°C/W	

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

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

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