

LOW Voltage N-Channel MOSFET

◆ Features:

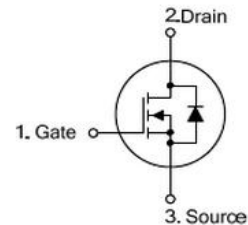
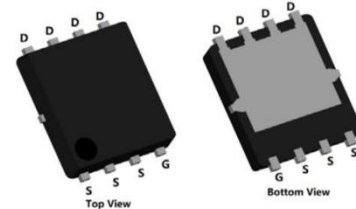
- ✧ Fast switching speed
开关速度快
- ✧ Low gate charge
低门充电
- ✧ High power and current handling capability
高功率和电流处理能力
- ✧ ROHS compliant
符合 ROHS 标准

◆ Applications

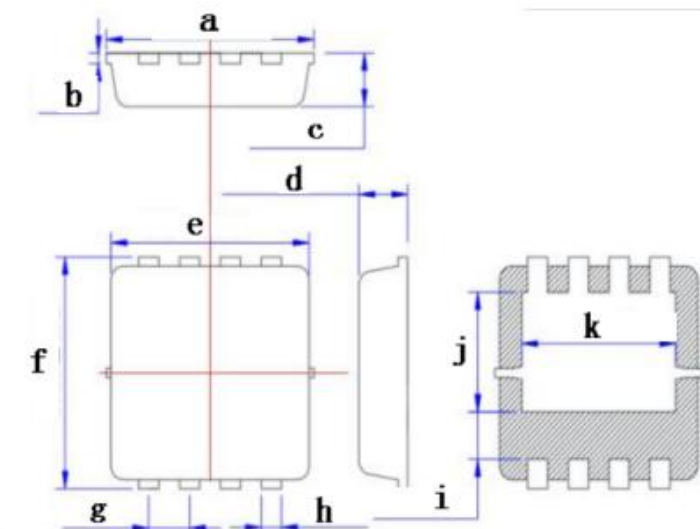
- ✧ DC to DC converters
直流到直流转换
- ✧ Synchronous Rectification
同步整流



DFN5*6



DFN5*6



Unit:mm

DIM	MIN	MAX
a	5.10	5.30
b	0.20	0.50
c	0.90	1.10
d	0.85	1.05
e	5.10	5.30
f	6.00	6.20
g	1.05	1.25
h	0.25	0.45
i	1.10	1.30
j	3.40	3.60
k	3.90	4.10

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◆ Absolute Maximum Ratings (Tc=25°C)

Symbol	Parameters	Ratings	Unit
V_{DSS}	Drain-Source Voltage 漏源电压	30	V
V_{GS}	Gate-Source Voltage-Continuous 栅源电压	±20	V
I_D	Drain Current-Continuous (Note 2) 漏极持续电流	90	A
I_{DM}	Drain Current-Single Plused (Note 1) 漏极单次脉冲电流	360	A
P_D	Power Dissipation (Note 2) 功率损耗	115	W
T_j	Max.Operating junction temperature 最大结温	150	°C

◆ 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	30	--	--	V	$I_D=250\mu A$, $V_{GS}=0V$
$V_{GS(th)}$	Gate Threshold Voltage 栅极开启电压	1.0	--	2.5	V	$V_{DS}=V_{GS}$, $I_D=250\mu A$
$R_{DS(on)}$	Drain-Source On-Resistance 漏源导通电阻	--	3.8	4.4	mΩ	$V_{GS}=10V$, $I_D=20A$
I_{GSS}	Gate-Body Leakage Current 栅极漏电流	--	--	±100	nA	$V_{GS}=±20V$, $V_{DS}=0$
I_{DSS}	Zero Gate Voltage Drain Current 零栅极电压漏极电流	--	--	1	μA	$V_{DS}=30V$, $V_{GS}=0$
gfs	Forward Trans conductance 正向跨导	--	20	--	S	$V_{DS}=5V$, $I_D=24A$



OSN004N03-OSEN

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Switching Characteristics						
T _{d (on)}	Turn-On Delay Time 开启延迟时间	--	15	--	ns	V _{GS} =10V, V _{DS} =30V,I _D =30A, R _G =1Ω
T _r	Rise Time 上升时间	--	13	--	ns	
T _{d (off)}	Turn-Off Delay Time 关闭延迟时间	--	35	--	ns	
T _f	Fall Time 下降时间	--	10	--	ns	
Q _g	Total Gate Charge 栅极总电荷	--	78	--	nC	V _{DS} =30, V _{GS} =4.5V, I _D =40A
Q _{gs}	Gate-Source Charge 栅源极电荷	--	15	--	nC	
Q _{gd}	Gate-Drain Charge 栅漏极电荷	--	25	--	nC	
Dynamic Characteristics						
C _{iss}	Input Capacitance 输入电容	--	3300	--	pF	V _{DS} =20V, V _{GS} =0, f=1MHz
C _{oss}	Output Capacitance 输出电容	--	375	--	pF	
C _{rss}	Reverse Transfer Capacitance 反向传输电容	--	60	--	pF	
I _S	Continuous Drain-Source Diode Forward Current (Note 2) 二极管导通正向持续电流	--	--	90	A	
V _{SD}	Diode Forward On-Voltage 二极管正向导通电压	--	--	1.2	V	I _S =30A, V _{GS} =0
R _{th(j-c)}	Thermal Resistance, Junction to Case 结到外壳的热阻	--	--	1.09	°C/W	

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

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