

Silicon N-Channel Power MOSFET

Description

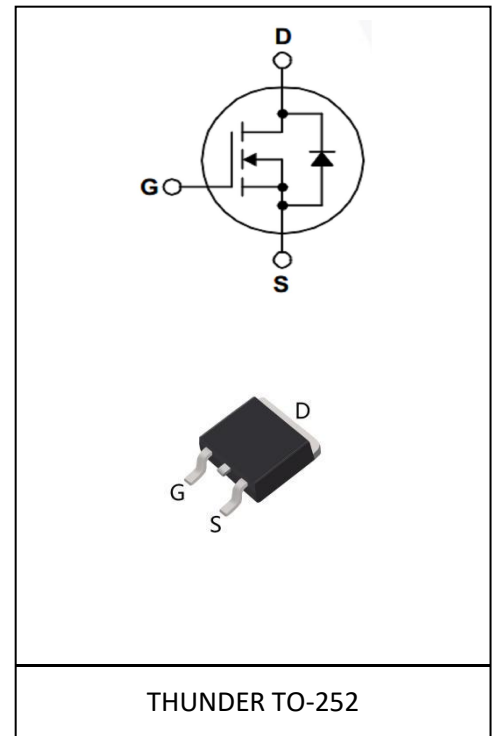
The TH4N65PG uses advanced technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.

General Features

- $V_{DS}=650V, I_D=4A$
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- Adapter and charger



Electrical Characteristics @ $T_a=25^\circ\text{C}$ (unless otherwise specified)

a) Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Breakdown Voltage	650	V
I_D	Drain Current (continuous) at $T_c=25^\circ\text{C}$	4	A
I_{DM}	Drain Current (pulsed)	16	A
V_{GS}	Gate to Source Voltage	+/-30	V
P_{tot}	Total Dissipation at $T_c=25^\circ\text{C}$	75	W
T_j	Max. Operating Junction Temperature	150	$^\circ\text{C}$
E_{AS}	Single Pulse Avalanche Energy	180	mJ

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	$V_{GS}=0V, I_D=250\mu A$	650			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	$V_{GS}=10V, I_D=2A$		2.0	2.5	Ω
$V_{GS(th)}$	Gated Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
I_{DSS}	Drain to Source leakage Current	$V_{DS}=650V, V_{GS}=0V$			1.0	μA
$I_{GSS(F)}$	Gated to Source Forward Leakage	$V_{GS}=+30V$			100	nA
$I_{GSS(R)}$	Gated to Source Reverse Leakage	$V_{GS}=-30V$			-100	nA
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ $f=1.0MHz$		544		pF
C_{oss}	Output Capacitance			55		pF
C_{rss}	Reverse Transfer Capacitance			8.5		pF

c) Switching Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=325V, I_D=4A,$ $R_G=4.7\Omega$		10		nS
t_r	Turn-on Rise Time			11		nS
$t_{d(off)}$	Turn-off Delay Time			31		nS
t_f	Turn-off Fall Time			16		nS
Q_g	Total Gate Charge	$V_{DS}=325V$ $I_D=4A$ $V_{GS}=10V$		14.5		nC
Q_{gs}	Gate-Source Charge			3		nC
Q_{gd}	Gate-Drain Charge			6		nC

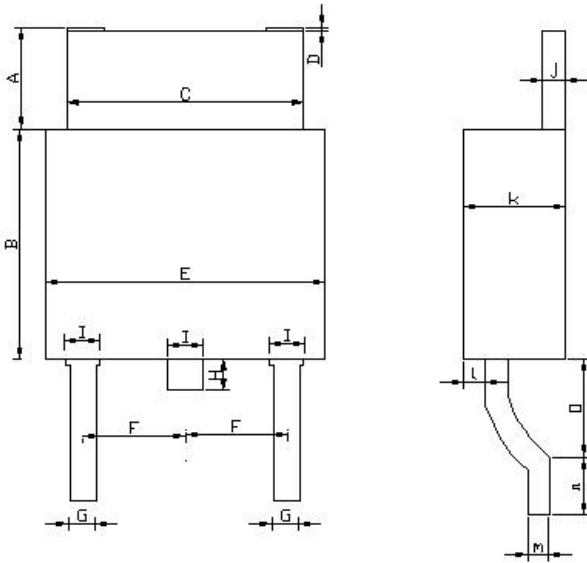
d) Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I _{SD}	S-D Current(Body Diode)				4	A
I _{SDM}	Pulsed S-D Current(Body Diode)				20	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{DS} =4A			1.5	v
t _{rr}	Reverse Recovery Time	T _J =25℃, I _F =4A di/dt=100A/us		430		nS
Q _{rr}	Reverse Recovery Charge			1.27		μC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Parameter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	2.0	$^\circ C/W$

Package Information

TO-252 PACKAGE



Symbol	Dimensions (millimeters)	
	Min.	Max.
A	0.40	1.40
B	5.35	6.35
C	4.80	5.80
D	0.08	0.12
E	5.80	6.80
F	2.20	2.40
G	0.50	0.70
H	0.20	1.2
I	0.70	0.9
J	0.41	0.61
K	2.05	2.55
L	0.55	1.05
M	0.41	0.61
N	1.05	1.55
O	1.25	1.75

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