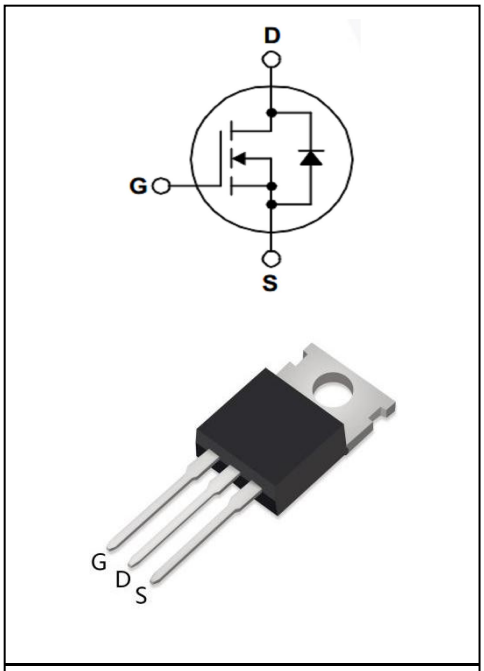
Silicon N-Channel Power MOSFET

Description

The TH12N65PC uses advanced technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.



THUNDER TO-220C

General Features

- V_{DS}=650V,I_D=12A
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- Adapter and charger

Electrical Characteristics @ Ta=25℃ (unless otherwise specified)

a) Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	650	V
I_D	Drain Current (continuous) at Tc=25℃	12	A
I_{DM}	Drain Current (pulsed)	48	A
V_{GS}	Gate to Source Voltage	+/-30	V
P_{tot}	Total Dissipation at Tc=25℃	75	W
T_j	Max. Operating Junction Temperature	150	℃
E_{AS}	Single Pulse Avalanche Energy	722	mJ

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS}=0V, I_D=250μA	650			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS}=10V, I_D=6A		0.46	0.7	Ω
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	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 Foward 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		2060		pF
C_{oss}	Output Capacitance			184		pF
C_{rss}	Reverse Transfer Capacitance			16		pF

c) Switching Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=325V,I_D=12A, R_G=25Ω		15		nS
t_r	Turn-on Rise Time			18		nS
$t_{d(off)}$	Turn-off Delay Time			44		nS
t_f	Turn-off Fall Time			22		nS
Q_g	Total Gate Charge	V_{DS}=325V I_D=12A V_{GS}=10V		44		nC
Q_{gs}	Gate-Source Charge			6.5		nC
Q_{gd}	Gate-Drain Charge			18		nC

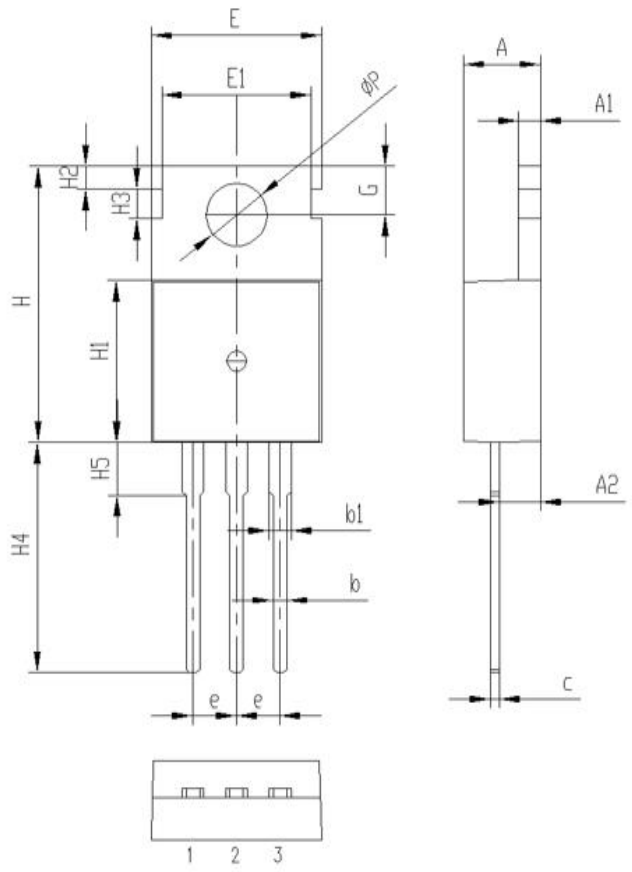
d) Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)				12	A
I_{SDM}	Pulsed S-D Current(Body Diode)				48	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{DS}=10A			1.5	V
t_{rr}	Reverse Recovery Time	T_J=25℃,I_F=10A di/dt=100A/us		345		nS
Q_{rr}	Reverse Recovery Charge			2.6		μC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

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

Package Information

TO-220C PACKAGE



Symbol	单位 mm		
	Min	Nom	Max
A	4.30	4.5	4.70
A1	1.20	1.30	1.40
A2	2.20	2.4	2.60
b	0.60	0.8	1.00
b1	1.20	1.30	1.40
c	0.40	0.5	0.60
e	2.44	2.54	2.64
E	9.80	10.0	10.2
E1	8.50	8.70	8.90
H	15.5	15.7	15.9
H1	9.00	9.2	9.40
H2	1.10	1.34	1.50
H3	1.50	1.7	1.90
H4	12.9	13.3	13.7
H5	2.80	3.0	3.20
G	2.60	2.8	3.00
ΦP	3.40	3.6	3.80

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