

## Silicon N-Channel Power MOSFET

### Description

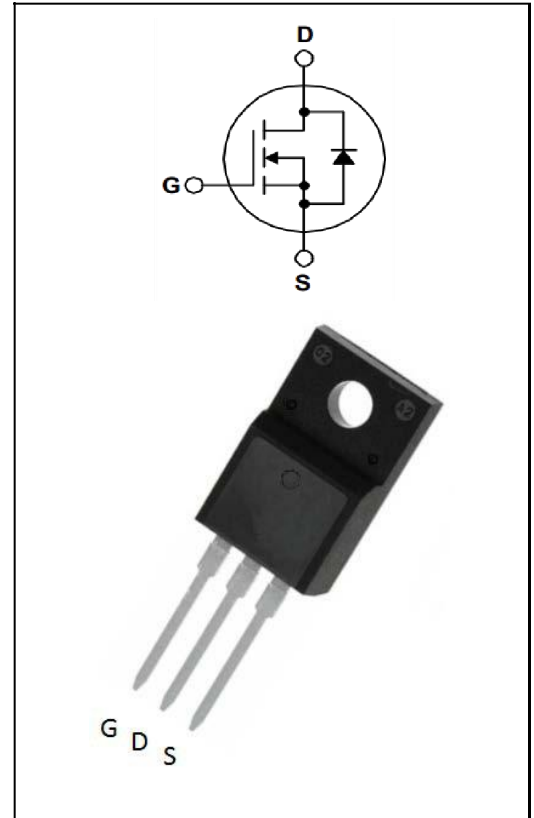
The TH10N60PF is silicon N-Channel Enhanced VDMOSFETS, is Obtained by the self-aligned Planar Technology with reduce the Conduction loss, improve switching performance and enhance the Avalanche energy.

### General Features

- $V_{DS}=600V, I_D=10A$
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

### Application

- UPS
- Adaptor
- Power switching application



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

#### a) Limited Parameters:

Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-to-Source Breakdown Voltage	600	V
$I_D$	Drain Current (continuous) at $T_c=25\text{ }^\circ\text{C}$	10	A
$I_{DM}$	Drain Current (pulsed)	40	A
$V_{GS}$	Gate to Source Voltage	+/-30	V
$P_{tot}$	Total Dissipation at $T_c=25\text{ }^\circ\text{C}$	100	W
$T_j$	Max. Operating Junction Temperature	175	$^\circ\text{C}$
Eas	Single Pulse Avalanche Energy	700	mj

**b) Electrical Parameters:**

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V <sub>DS</sub>	Drain-source Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	600	670		V
R <sub>DSON</sub>	Static Drain-to-Source on-Resistance	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5A		0.58	0.80	Ω
V <sub>GS(th)</sub>	Gated Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.0	3.0	4.0	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 600V, V <sub>GS</sub> = 0V			1.0	μA
I <sub>GSS(F)</sub>	Gated Body Leakage Current	V <sub>GS</sub> = +30V,			1.0	uA
I <sub>GSS(R)</sub>	Gated Body Leakage Current	V <sub>GS</sub> = -30V,			-1.0	uA
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V,		1511		pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> = 25V,		141		pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f = 1.0MHz		15		pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 300V		35		nC
Q <sub>gs</sub>	Gate-Source Charge	I <sub>D</sub> = 10A		10		nC
Q <sub>gd</sub>	Gate-Drain Charge	V <sub>GS</sub> = 10V		12		nC

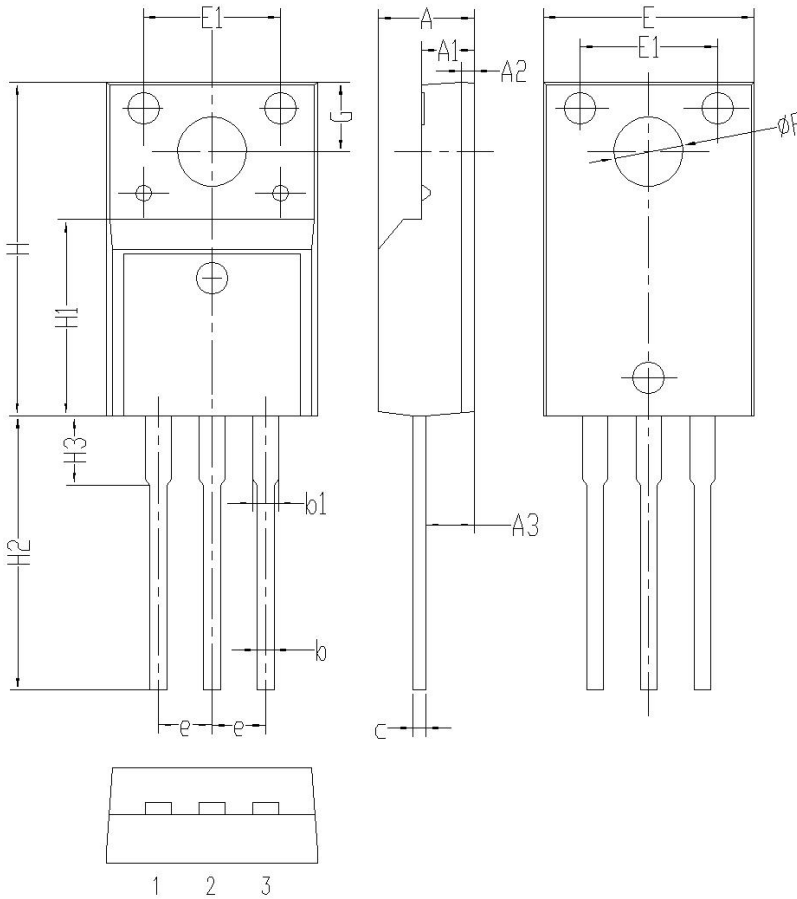
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = 300V, I <sub>D</sub> = 10A		27		nS
t <sub>r</sub>	Turn-on Rise Time	V <sub>GS</sub> = 10V, R <sub>G</sub> = 10 Ω		23		nS
t <sub>d(off)</sub>	Turn-off Delay Time			50		nS
t <sub>f</sub>	Turn-off Fall Time			35		nS

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I <sub>SD</sub>	S-D Current(Body Diode)			10		A
I <sub>SDM</sub>	Pulsed S-D Current(Body Diode)			40		A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>DS</sub> = 10A			1.4	V
t <sub>rr</sub>	Reverse Recovery Time	T <sub>J</sub> = 25°C, I <sub>F</sub> = 10A		528		nS
Q <sub>rr</sub>	Reverse Recovery Charge	di/dt = 100A/us		3200		nC
*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%						

Symbol	Parameter	Typ	Units
R <sub>θJC</sub>	Junction-to-Case	1.5	°C/W

## Package Information

### TO-220F PACKAGE



	单位: mm		
	MIN	NOM	MAX
A	4.35	4.55	4.75
A 1	2.3	2.5	2.7
A 2	0.4	0.6	0.8
A 3	2.1	2.3	2.5
b	0.6	0.8	1.0
b 1	1.0	1.2	1.4
c	0.3	0.5	0.7
e	2.3	2.5	2.7
E	9.8	10	10.2
E 1	6.3	6.5	6.7
H	15.6	15.8	16.0
H 1	8.8	9	9.2
H 2	12.9	13.2	13.5
H 3	3.1	3.3	3.5
G	3.1	3.3	3.5
$\Phi P$	3.1	3.3	3.5

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