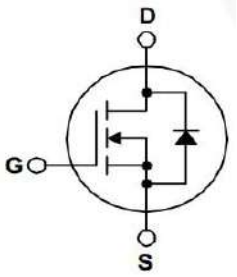
Silicon N-Channel Power MOSFET

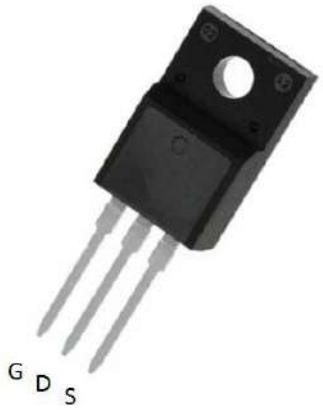
Description:

The KW10N80F is silicon N-Channel Enhanced VDMOSFETS, is Obtained by the self-aligned Planar Technology witch reduce the Conduction loss, improve switching performance and enhance the avalanche energy.



Features:

- V_{DS}=800V,I_D=10A
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test



Application:

- UPS
- Adaptor
- Power switching application

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

a) Limited Parameters:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	800	V
I_D	Drain Current (continuous) at Tc=25℃	10	A
I_{DM}	Drain Current (pulsed)	40	A
V_{GS}	Gate to Source Voltage	+/-20	V
P_{tot}	Total Dissipation at Tc=25℃	60	W
T_j	Max. Operating Junction Temperature	175	℃
Eas	Single Pulse Avalanche Energy	125	mj

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS}=0V, I_D=250μA	800			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS}=10V, I_D=5A		0.62	0.75	Ω
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	2.0	3.0	4.0	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=800V, V_{GS} = 0V			1.0	uA
$I_{GSS(F)}$	Gated Body Leakage Current	V_{GS}= +20V,			10	uA
$I_{GSS(R)}$	Gated Body Leakage Current	V_{GS}= -20V,			-10	uA
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1.0MHZ		2900		pF
C_{oss}	Output Capacitance			200		pF
C_{rss}	Reverse Transfer Capacitance			25		pF
Q_g	Total Gate Charge	V_{DS}=640V I_D=10A V_{GS}=10V		65		nC
Q_{gs}	Gate-Source Charge			13		nC
Q_{gd}	Gate-Drain Charge			25		nC

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=400V,I_D=10A V_{GS}=10V,R_G=4.7 Ω		19		nS
t_r	Turn-on Rise Time			10		nS
$t_{d(off)}$	Turn-off Delay Time			68		nS
t_f	Turn-off Fall Time			23		nS

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)			10		A
I_{SDM}	Pulsed S-D Current(Body Diode)			40		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		200		nS
Q_{rr}	Reverse Recovery Charge			2200		nC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Paramter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	1.2	℃/W

Characteristics Curve:

Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

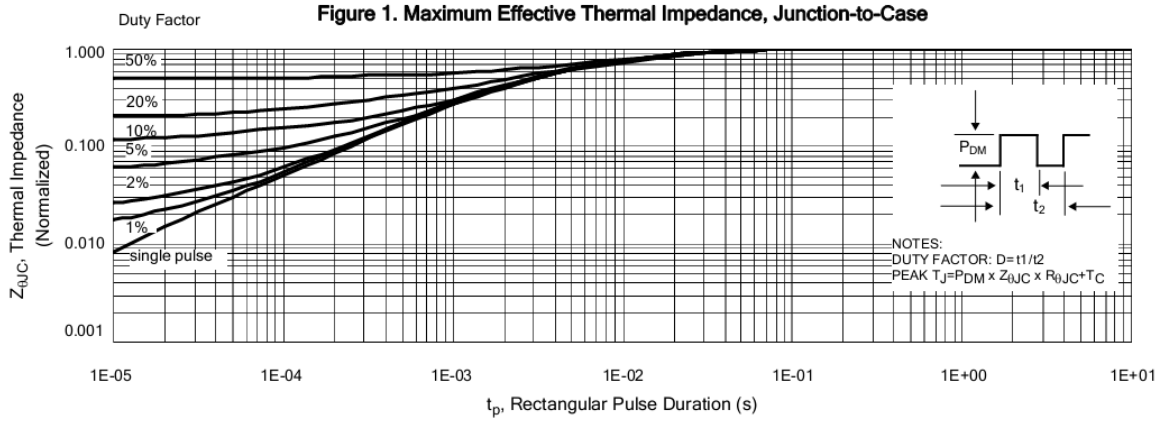


Figure 2. Maximum Power Dissipation vs Case Temperature

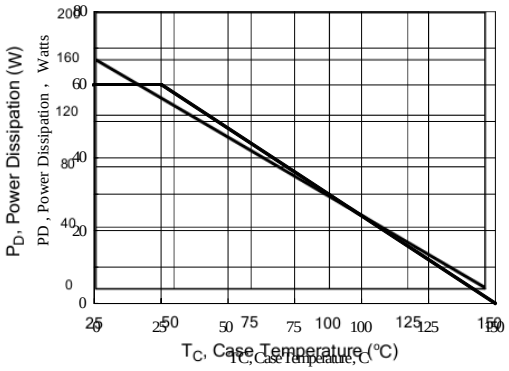


Figure3. Maximum Continuous Drain Current vs Case Temperature

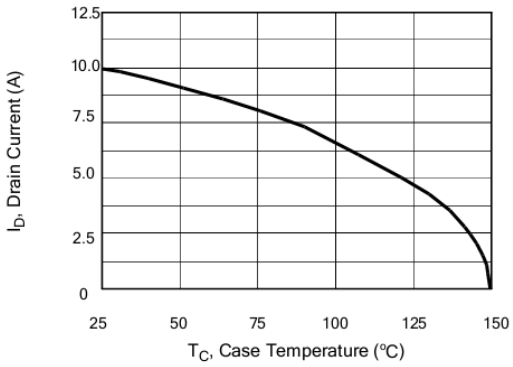


Figure 4. Typical Output Characteristics

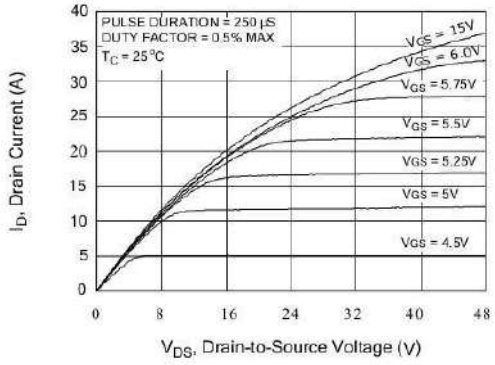
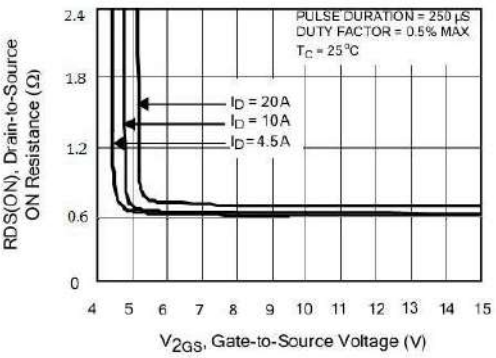


Figure5. Typical Drain-to-Source ON Resistance vs Gate Voltage and Drain Current



Characteristics Curve:

Figure 6. Typical Breakdown Voltage vs Junction Temperature

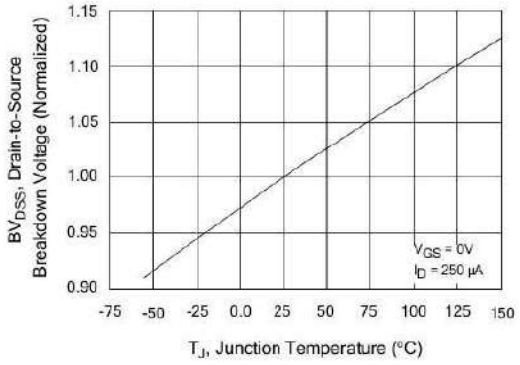


Figure 7. Typical Threshold Voltage vs Junction Temperature

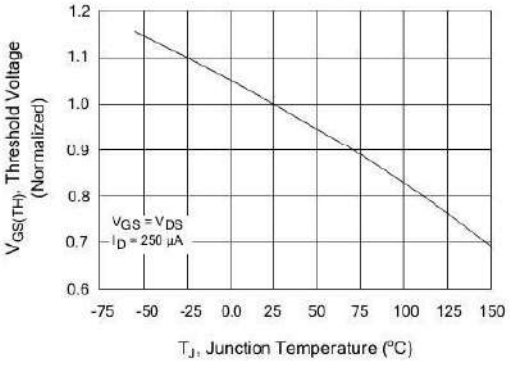


Figure 8. Maximum Forward Bias Safe Operating Area

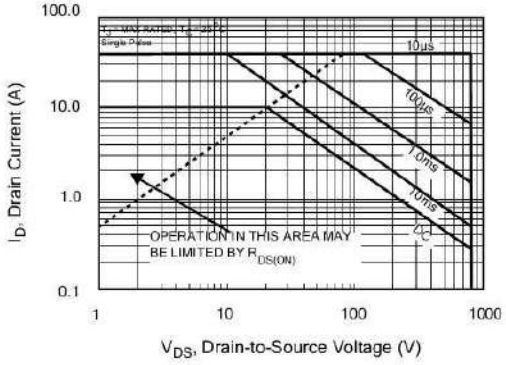


Figure 9. Typical Capacitance vs Drain-to-Source Voltage

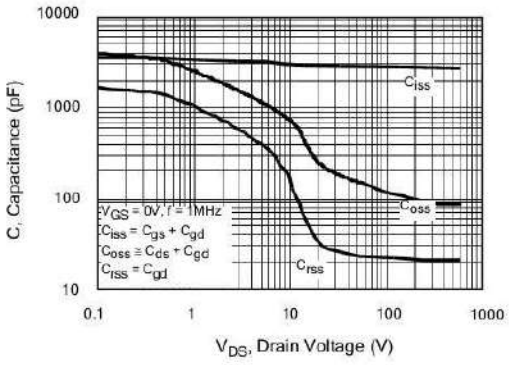


Figure 10. Typical Gate Charge vs Gate-to-Source Voltage

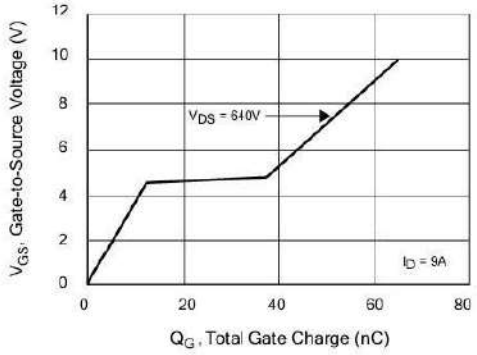
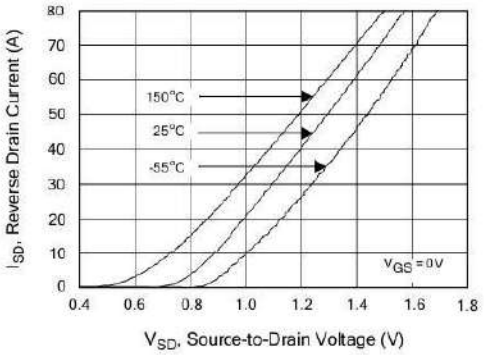
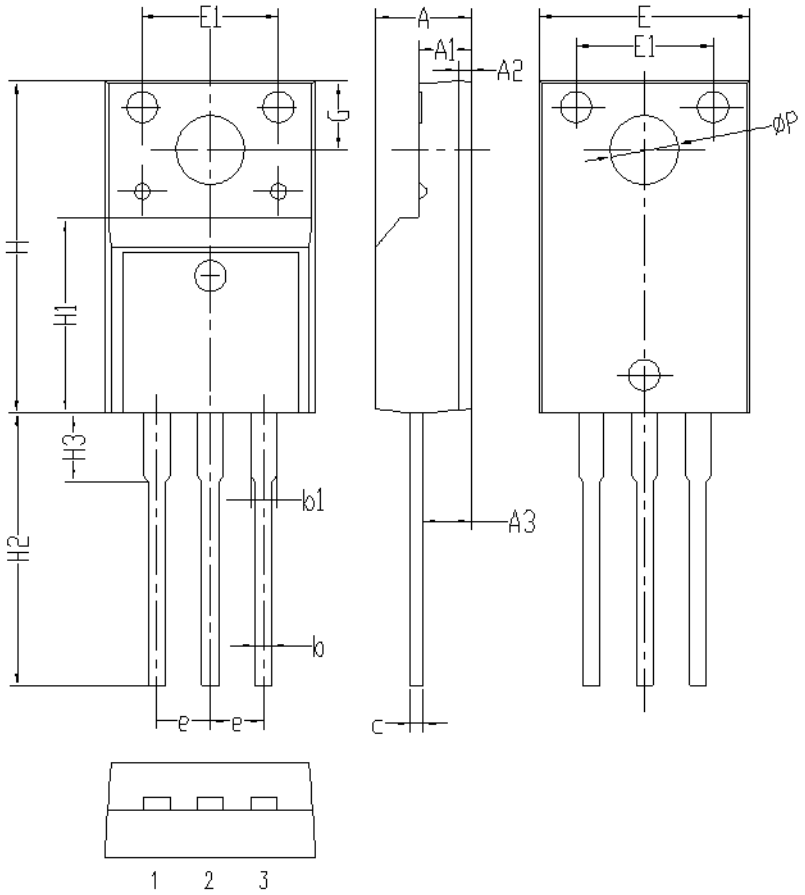


Figure 11. Typical Body Diode Transfer Characteristics



Package Information

ITO-220 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
ΦP	3.1	3.3	3.5