

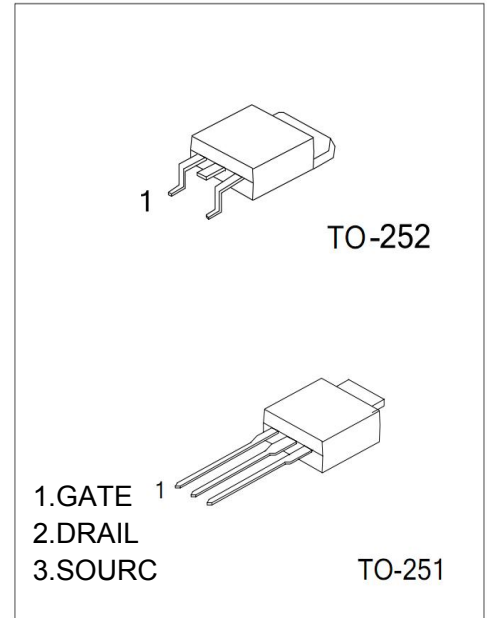


**MK7N60**

**N-Channel 600-V(D-S) Power MOSFET**

<b>V(BR)DSS</b>	<b>RDS(on)MAX</b>	<b>ID</b>
600 V	1.5Ω@ 10 V	7A

**Equivalent Circuit:**



**General Description:**

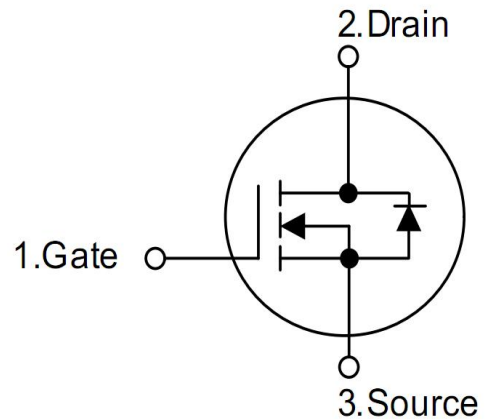
The high voltage MOSFET uses an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. In addition, this advanced MOSFET is designed to withstand high energy in avalanche and commutation modes. The new energy efficient design also offers a drain-to-source diode with a fast recovery time. Designed for high voltage, high speed switching applications in power suppliers, converters and PWM motor controls, these devices are particularly well suited for bridge circuits where diode speed and commutating safe operating areas are critical and offer additional and safety margin against unexpected voltage transients.

**MARKING: MK 7N60 MKD / U \*\*\*\***  
(D-252) / (U-251)

**FEATURE:**

- ※ Power switching application
- ※ Hard switched and high frequency circuits
- ※ Uninterruptible power supply
- ※ Fully characterized avalanche voltage and current
- ※ Excellent package for good heat dissipation
- ※ Good stability and uniformity with high EAS

**SYMBOL:**



**Maximum ratings ( Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	600	V
Gate-Source Voltage	VGS	±30	
Continuous Drain Current	ID	7	A
Pulsed Diode Curren	IDM	28	
Power Dissipation	PD	59	W
Thermal Resistance from Junction to Ambient (t≤10s)	RθJA	110	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	



**MOSFET ELECTRICAL CHARACTERISTICS**

**Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)**

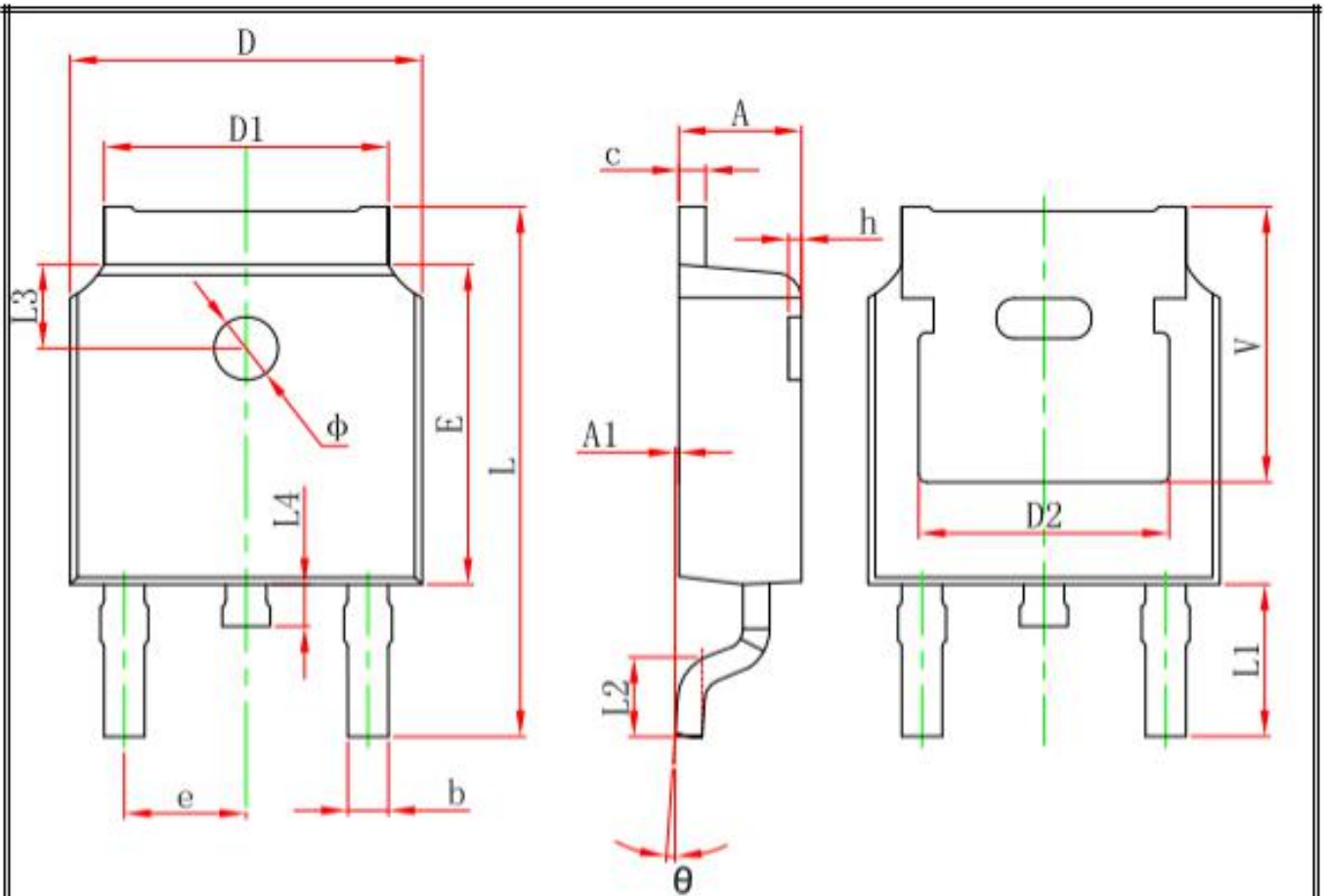
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = 250μA	600			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	2.5		4.5	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±30V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 600V, VGS =0V			1	μA
Drain-source on-state resistancea	RDS(on)	VGS = 10V, ID = 3.5A		1.2	1.5	Ω
Forward transconductancea	gfs	VDS = 400V, ID = 3.5A		8		S
Diode forward voltage	VSD	IS= 6A, VGS=0V		0.8	1.5	V
<b>Dynamic</b>						
Input capacitance	Ciss	VDS = 25V, VGS =0V, f=1MHz		740		pF
Output capacitance	Coss			140		pF
Reverse transfer capacitanceb	Crss			8		pF
Total gate charge	Qg	VDS = 50V, VGS = 10V, ID = 7A		68		nC
Gate-source charge	Qgs			6.6		nC
Gate-drain charge	Qgd			6		nC
<b>Switchingb</b>						
Turn-on delay time	td(on)	VDS= 100V RL= 18Ω, ID = 7A, VGEN= 10V,Rg= 18Ω		60	72	ns
Rise time	tr			66	79	ns
Turn-off delay time	td(off)			120	144	ns
Fall time	tf			64	77	ns
<b>Drain-Source Diode Characteristics</b>						
Continuous Source-Drain Diode Current	IS				7	A
Pulsed Diode forward Curren	ISM				28	A
Reverse Recovery Time	trr	ISD=7A, dI/dt=100A/us		368		ns
Reverse Recovery Charde	Qrr	ISD=7A, dI/dt=100A/us		4.5		nC

**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 10 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



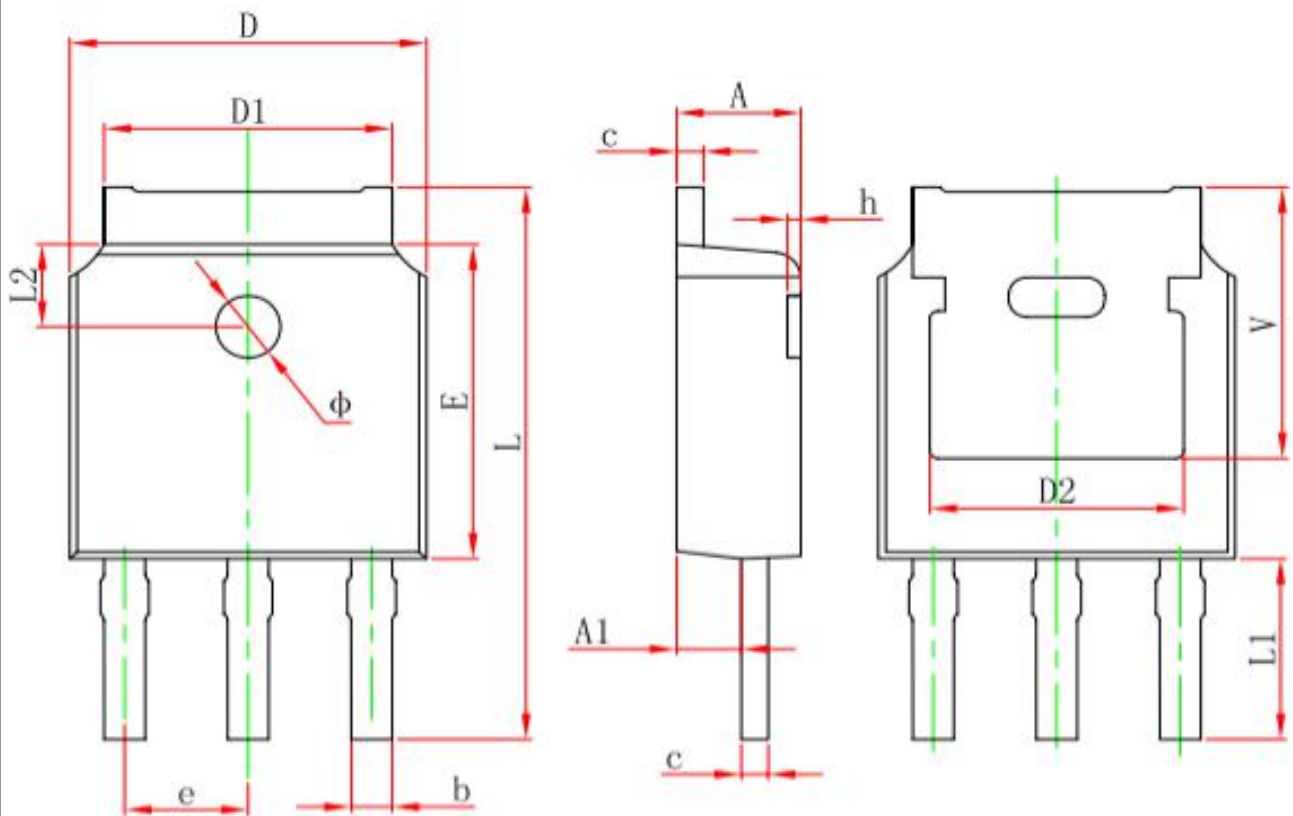
PACKAGE OUTLINE DIMENSIONS :



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	



PACKAGE OUTLINE DIMENSIONS :



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.860	1.160	0.034	0.046
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	10.400	11.000	0.409	0.433
L1	3.300	3.700	0.130	0.146
L2	1.600 REF.		0.063 REF.	
Φ	1.100	1.300	0.043	0.051
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	