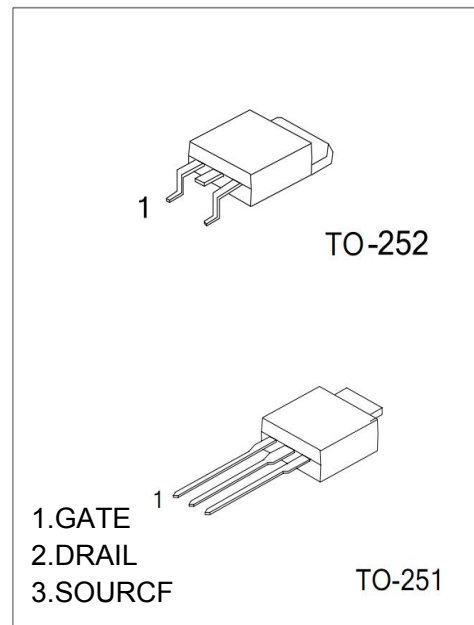


**MK10N10****N-Channel 100-V(D-S) Power MOSFET**

V(BR)DSS	RDS(on)MAX	ID
100 V	143mΩ@ 10 V	10A
	156mΩ@ 4.5 V	

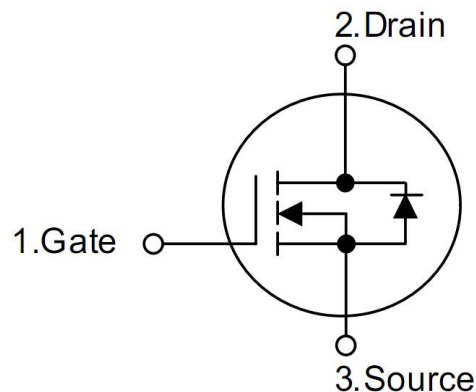
Equivalent Circuit:**General Description:**

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 10N10 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	100	V
Gate-Source Voltage	VGS	±25	
Continuous Drain Current	ID	10	A
Pulsed Diode Current	IDM	30	
Power Dissipation	PD	45	W
Thermal Resistance from Junction to Ambient (t≤10s)	RθJA	100	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	



MOSFET ELECTRICAL CHARACTERISTICS

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

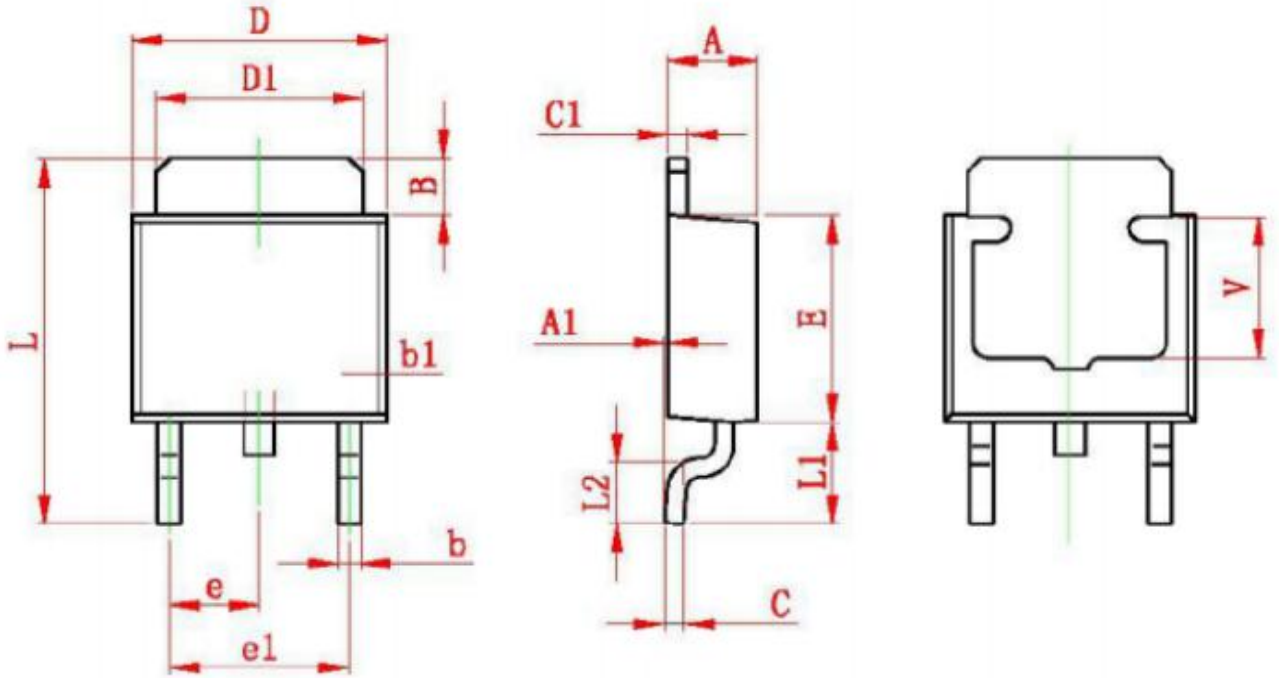
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = 250μA	100			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	1		3	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±25V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 100V, VGS =0V			1	μA
Drain-source on-state resistancea	RDS(on)	VGS = 10V, ID = 6.5A			143	mΩ
	RDS(on)	VGS = 4.5V, ID = 5A			156	mΩ
Forward transconductancea	gfs	VDS = 25V, ID = 5A		15		S
Diode forward voltage	VSD	IS= 5A, VGS=0V		0.8	1.3	V
Dynamic						
Input capacitance	Ciss	VDS = 25V, VGS =0V, f=1MHz		860		pF
Output capacitance	Coss			56		pF
Reverse transfer capacitanceb	Crss			44		pF
Total gate charge	Qg	VDS = 80V, VGS = 10V, ID = 10A		26		nC
Gate-source charge	Qgs			7		nC
Gate-drain charge	Qgd			5.4		nC
Switchingb						
Turn-on delay time	td(on)	VDD= 50V RL= 25Ω, ID = 10A, VGEN= 10V,Rg= 25Ω		4.8		ns
Rise time	tr			4.5		ns
Turn-off delay time	td(off)			67		ns
Fall time	tf			34		ns
Drain-Source Diode Characteristics						
Continuous Source-Drain Diode Current	IS				10	A
Pulsed Diode forward Curren	ISM				30	A
Body Diode Reverse Recovery Time	Trr	IF= 10A, dI/dt=100A/μs		50		ns
Body Diode Reverse Recovery Charge	Qrr	IF= 10A, dI/dt=100A/μs		80		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.



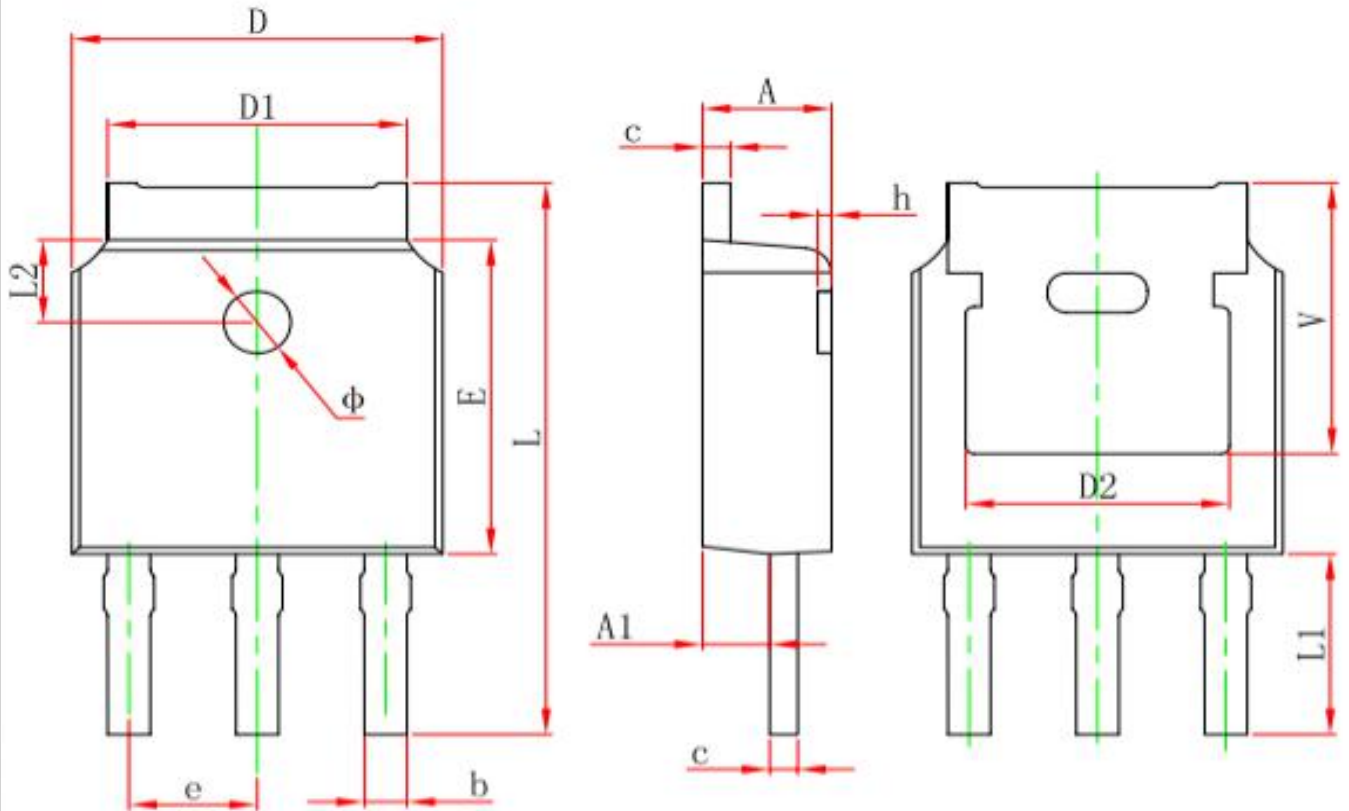
PACKAGE OUTLINE DIMENSIONS :



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	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
V	3.80 REF		0.150 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.	