SHENZHEN MENGKE ELECTRONICS TECHNOLOGY CO.,LTD

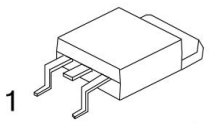
TO-252/251 Plastic-Encapsulate MOSFETS

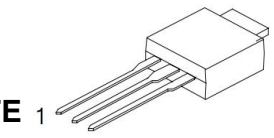
RoHS-compliant Product

MK3006N N-Channel 30-V(D-S) Power MOSFET

V(BR)DSS	RDS(on)MAX	ID
30 V	6.5mΩ @ 10 V	60A
	10mΩ @ 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.

FEATURE:

※ Power switching application

※ Hard switched and high frequency circuits

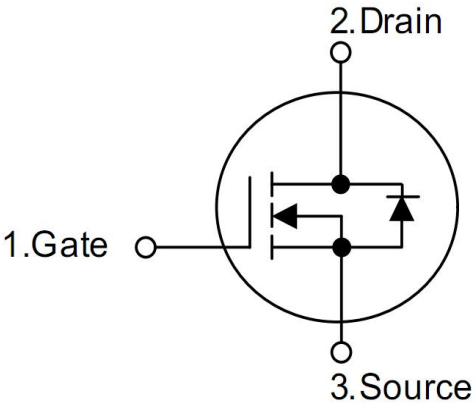
※ Uninterruptible power supply

※ Fully characterized avalanche voltage and current

※ Excellent package for good heat dissipation

※ Good stability and uniformity with high EAS

SYMBOL:



Maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	60	A
Pulsed Diode Curren	IDM	80	
Power Dissipation	PD	45	W
Thermal Resistance from Junction to Ambient (t≤10s)	RθJA	100	℃/W
Operating Junction	TJ	150	℃
Storage Temperature	TSTG	-55~+150	

MOSFET ELECTRICAL CHARACTERISTICS

Static Electrical Characteristics (Ta = 25 ℃ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	**V(BR)DSS**	VGS = 0V, ID = 250μA	30			V
Gate-source threshold voltage	**VGS(th)**	VDS =VGS, ID = 250μA	1		2.5	V
Gate-source leakage	**IGSS**	VDS =0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	**IDSS**	VDS = 25V, VGS =0V			1	μA
Drain-source on-state resistancea	**RDS(on)**	VGS = 10V, ID = 30A		5	6.5	mΩ
	RDS(on)	VGS = 4.5V, ID = 20A		6	10	mΩ
Forward transconductancea	**gfs**	VDS = 25V, ID = 30A		15		S
Diode forward voltage	**VSD**	IS= 30A, VGS=0V		0.85	1.3	V
Dynamic						
Input capacitance	**Ciss**	VDS = 15V, VGS =0V, f=1MHz		900		pF
Output capacitance	**Coss**			210		pF
Reverse transfer capacitanceb	**Crss**			90		pF
Total gate charge	**Qg**	VDS = 25V, VGS = 10V, ID = 10A		18	28	nC
Gate-source charge	**Qgs**			3.4		nC
Gate-drain charge	**Qgd**			3.4		nC
Gate resistance	**Rg**	f=1MHz		1		Ω
Switchingb						
Turn-on delay time	**td(on)**	VDD= 15V RL= 18Ω, ID = 8A, VGEN= 10V,Rg= 18Ω		11		ns
Rise time	**tr**			49		ns
Turn-off delay time	**td(off)**			27		ns
Fall time	**tf**			28		ns
Drain-Source Diode Characteristics						
Reverse Recovery Time	**trr**	ISD=9A, dI/dt=100A/s			58	ns
Reverse Recovery Charde	**Qrr**	ISD=9A, dI/dt=100A/s			70	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%.

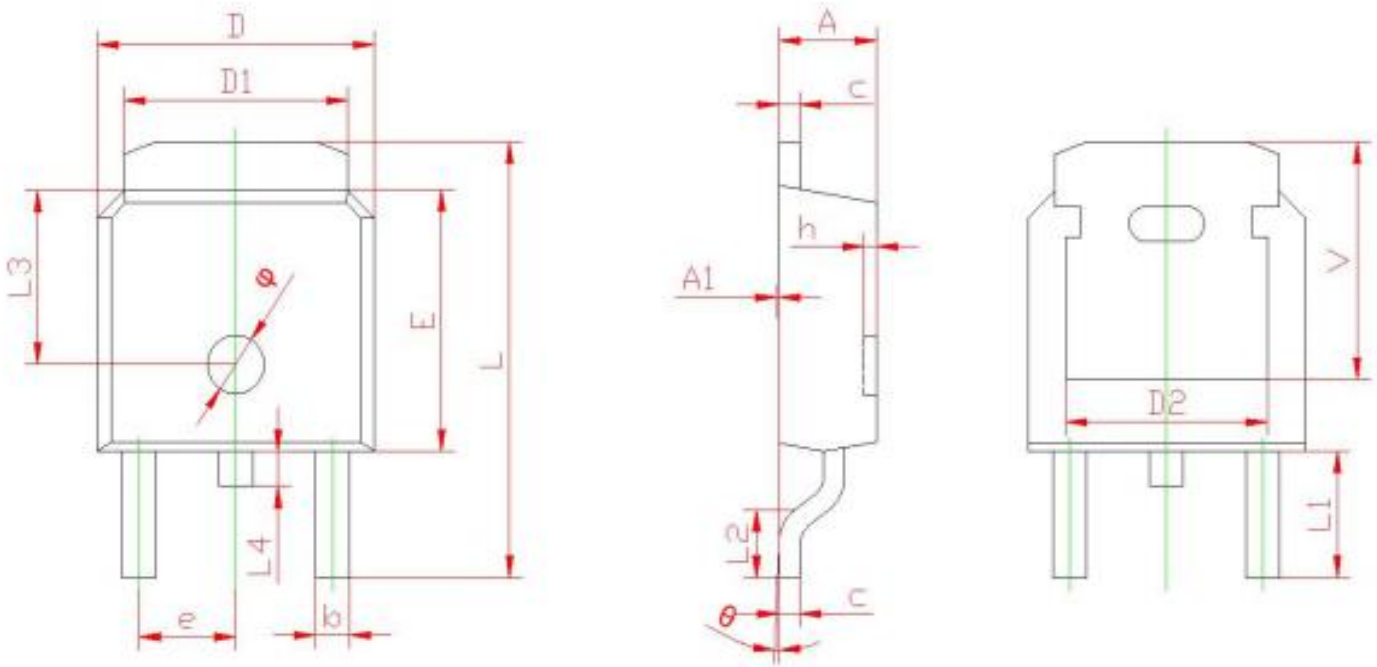
4. Guaranteed by design, not subject to production testing.

SHENZHEN MENGKE ELECTRONICS TECHNOLOGY CO.,LTD

RoHS-compliant Product

PACKAGE OUTLINE DIMENSIONS :

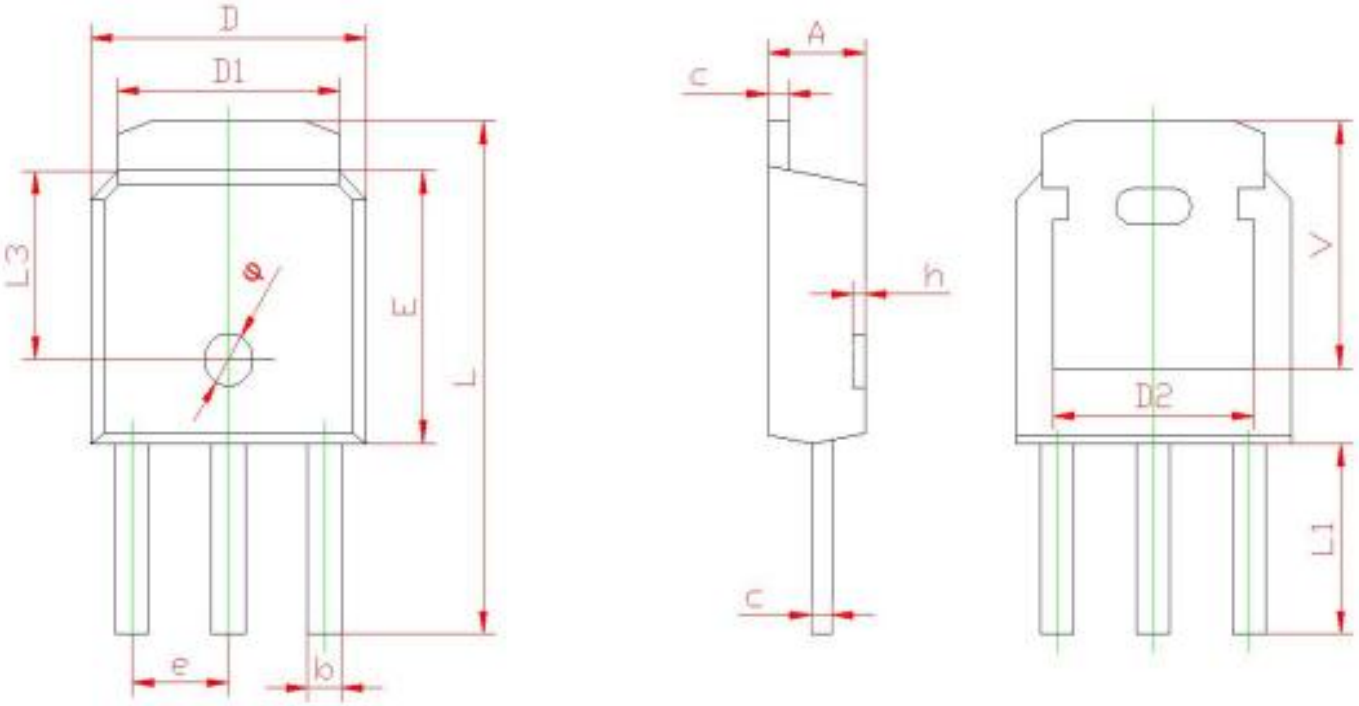
TO-252 PACKAGE OUTLINE DIMENSIONS



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	4.800 REF		0.189 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	4.00 REF		0.157 REF	
L4	0.600	1.000	0.024	0.039
φ	1.200	1.400	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.500 REF		0.217 REF	

PACKAGE OUTLINE DIMENSIONS :

TO-251 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
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	4.800 REF		0.189 REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	11.100	11.700	0.437	0.461
L1	4.300 REF		0.170 REF	
L3	4.00 REF		0.16 REF	
φ	1.200	1.400	0.043	0.051
h	0.000	0.300	0.000	0.012
V	5.500 REF		0.217 REF	