



30N06

N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	30mΩ@10V	30A

GENERAL DESCRIPTION

The MOSFET uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

FEATURE

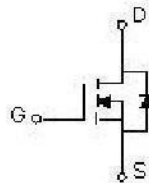
- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATION

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

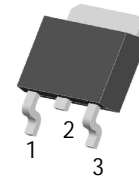
MARKING:

Equivalent Circuit



TO-252

1. GATE
2. DRAIN
3. SOURCE



Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	30	A
Pulsed Drain Current	I_{DM}	60	
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	72	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55~+150	

(1). E_{AS} condition: $T_J=25^{\circ}C, V_{DD}=30V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On characteristics (note 1)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2	3	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		23	30	m Ω
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V,$ $f = 1MHz$		500		pF
Output capacitance	C_{oss}			60		
Reverse transfer capacitance	C_{rss}			25		
Switching characteristics (note 2)						
Total gate charge	Q_g	$V_{DS} = 48V, V_{GS} = 10V,$ $I_D = 15A$		12		nC
Gate-source charge	Q_{gs}			4.1		
Gate-drain charge	Q_{gd}			4.5		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, I_D = 2A,$ $V_{GS} = 10V, R_G = 3\Omega,$ $R_L = 6.7\Omega$		5		ns
Turn-on rise time	t_r			2.6		
Turn-off delay time	$t_{d(off)}$			16.1		
Turn-off fall time	t_f			2.3		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note 1)	V_{SD}	$V_{GS} = 0V, I_S = 20A$			1.2	V
Continuous drain-source diode forward current	I_S				20	A
Pulsed drain-source diode forward current	I_{SM}				60	A

Notes:

1. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production.

Typical Characteristics

