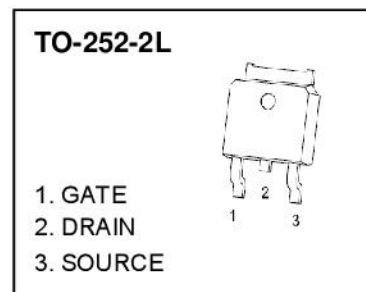


100N03

■ Rectifier Diodes

N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	4 mΩ@10V	80A
	7mΩ@ 5V	



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.

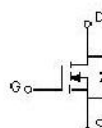
FEATURES

- High density cell design for ultra low $R_{DS(ON)}$
- 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

APPLICATIONS

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

EQUIVALENT CIRCUIT



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	80	A
Pulsed Drain Current	I_{DM}	320	A
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	306	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^\circ\text{C}$

(1). E_{AS} condition: $V_{DD}=20V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^\circ\text{C}$

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Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On characteristics (note1)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.5	3.0	V
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		3	4	m Ω
		$V_{GS} = 5V, I_D = 24A$		4.2	7	m Ω
Forward transconductance	g_{FS}	$V_{DS} = 5V, I_D = 24A$	20			S
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1MHz$		2330		pF
Output capacitance	C_{oss}			460		
Reverse transfer capacitance	C_{rss}			230		
Switching characteristics (note 2)						
Total gate charge	Q_g	$V_{DS} = 10V, V_{GS} = 10V,$ $I_D = 30A$		51		nC
Gate-source charge	Q_{gs}			14		
Gate-drain charge	Q_{gd}			11		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, I_D = 30A,$ $V_{GS} = 10V, R_G = 2.7\Omega$		20		ns
Turn-on rise time	t_r			15		
Turn-off delay time	$t_{d(off)}$			60		
Turn-off fall time	t_f			10		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V_{SD}	$V_{GS} = 0V, I_S = 24A$			1.2	V
Continuous drain-source diode forward current	I_S				80	A
Pulsed drain-source diode forward current	I_{SM}				320	A

Notes:

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

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Rectifier Diodes

