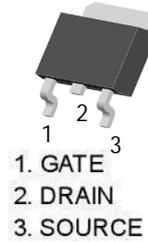




## 15N10 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
100V	0.09 $\Omega$ @10V	15A

TO-252



### GENERAL DESCRIPTION

The 15N10 provide excellent  $R_{DS(ON)}$ , low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

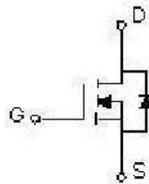
### FEATURE

- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

### APPLICATION

- Power switching application

### EQUIVALENT CIRCUIT



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	15	A
Pulsed Drain Current	$I_{DM}$	38.4	
Single Pulsed Avalanche Energy (note1)	$E_{AS}$	150	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	
Maximum lead temperature for soldering purposes , 1/8" from case for 5 seconds	$T_L$	260	

## MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
<b>On characteristics (note2)</b>						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	2.0	2.5	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$		0.09	0.115	$\Omega$
<b>Dynamic characteristics (note 3)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		690		pF
Output capacitance	$C_{oss}$			120		
Reverse transfer capacitance	$C_{rss}$			90		
<b>Switching characteristics (note 3)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, R_G = 2.5\Omega, I_D = 2A, V_{GS} = 10V$		11		ns
Turn-on rise time	$t_r$			7.4		
Turn-off delay time	$t_{d(off)}$			35		
Turn-off fall time	$t_f$			9.1		
Total Gate Charge	$Q_g$	$V_{DS} = 30V, V_{GS} = 10V, I_D = 3A$		15.5		nC
Gate-Source Charge	$Q_{gs}$			3.2		nC
Gate-Drain Charge	$Q_{gd}$			4.7		nC
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage (note2)	$V_{SD}$	$V_{GS} = 0V, I_S = 9A$			1.2	V
Continuous drain-source diode forward current	$I_S$				9.6	A
Pulsed drain-source diode forward current	$I_{SM}$				38.4	A

**Notes :**

- $I_L = 7A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}.$
- Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production

# Typical Characteristics

