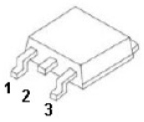
TO-252-2L Plastic-Encapsulate MOSFETS

2N60 N-Channel Power MOSFET

TO-252-2L

1. GATE
2. DRAIN
3. SOURCE

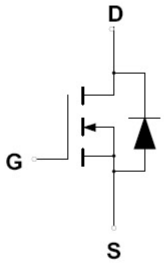


General Description

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.

FEATURES

- Robust High Voltage Termination
- Avalanche Energy Specified
- Source-to-Drain Diode Recovery Time Comparable to a Discrete Fast Recovery Diode
- Diode is Characterized for Use in Bridge Circuits
- I_{DSS} and $V_{DS(on)}$ Specified at Elevated Temperature



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	**±30**	
Continuous Drain Current	I_D	2	A
Pulsed Drain Current	I_{DM}	4	
Power Dissipation	P_D	**45**	W
Single Pulsed Avalanche Energy*	E_{AS}	**140**	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-50 ~+150	

*E_{AS} condition: T_j=25℃,V_{DD}=100V,V_{GS}=10V,L=10mH,I_{AS}=2A,R_G=25Ω

Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	600			V
Gate-Threshold Voltage (note1)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0		4.0	
Gate-Body Leakage Current (note1)	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =600V, V_{GS} =0V			0.25	μA
Drain-Source On-State Resistance (note1)	$R_{DS(on)}$	V_{GS} =10V, I_D =1A			4.4	Ω
Forward Transconductance (note1)	g_{FS}	V_{DS} =50V, I_D =1A	1	**2.25**		S
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V, f =1MHz		**250**	**350**	pF
Output Capacitance	C_{oss}			**30**	**50**	
Reverse Transfer Capacitance	C_{rss}			**4.7**	**7**	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V,I_D=2A, V_{GS}=10V,R_G=18Ω		**10**	**30**	nS
Rise Time	t_r			**25**	**60**	
Turn-Off Delay Time	$t_{d(off)}$			**20**	**50**	
Fall Time	t_f			**25**	**60**	
Forward on Voltage(note1)	V_{SD}	V_{GS} =0V, I_S=2A			1.6	V

Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.