



RU60E16L

N-Channel Advanced Power MOSFET

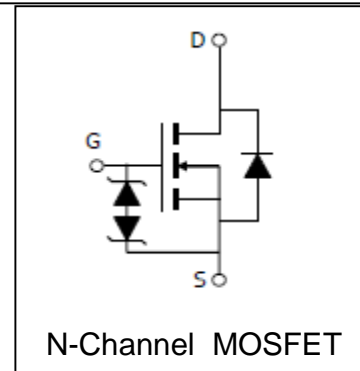
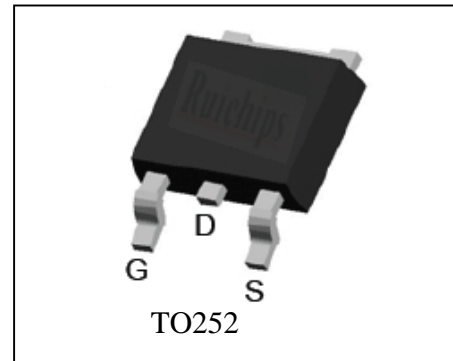
Features

- 60V/16A,
 $R_{DS(ON)} = 60m$ (tpy.)@ $V_{GS} = 10V$
 $R_{DS(ON)} = 75m$ (tpy.)@ $V_{GS} = 4.5V$
- Super High Dense Cell Design
- ESD protected
- Reliable and Rugged
- 100% avalanche tested
- Lead Free and Green Devices Available
 (RoHS Compliant)

Applications

- Power Management

Pin Description



N-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C = 25^\circ C$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	± 20	
T_J	Maximum Junction Temperature	175	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
I_S	Diode Continuous Forward Current	$T_C = 25^\circ C$ 16	A
Mounted on Large Heat Sink			
I_{DP}	300 μs Pulse Drain Current Tested	$T_C = 25^\circ C$ 64 ^①	A
I_D	Continuous Drain Current	$T_C = 25^\circ C$ 16 ^②	A
		$T_C = 100^\circ C$ 11.5	
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$ 40	W
		$T_C = 100^\circ C$ 20	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	3.75	$^\circ C/W$
Drain-Source Avalanche Ratings			
E_{AS} ^③	Avalanche Energy, Single Pulsed	25	mJ

Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU60E16L			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	60			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			1	μA
		$T_J=85^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.5	2	2.7	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
$R_{DS(ON)}^{(4)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=8A$		60	75	$m\Omega$
		$V_{GS}=4.5V, I_{DS}=5.5A$		75	90	$m\Omega$
Diode Characteristics						
$V_{SD}^{(4)}$	Diode Forward Voltage	$I_{SD}=8A, V_{GS}=0V$			1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=8A, dI_{SD}/dt=100A/\mu s$		38		ns
Q_{rr}	Reverse Recovery Charge			67		nC
Dynamic Characteristics ⁽⁵⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		1.3		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=30V,$ Frequency=1.0MHz		480		pF
C_{oss}	Output Capacitance			75		
C_{rss}	Reverse Transfer Capacitance			48		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=30V, R_L=3.8\Omega,$ $I_{DS}=8A, V_{GEN}=10V,$ $R_G=4.7\Omega$		15		ns
t_r	Turn-on Rise Time			18		
$t_{d(OFF)}$	Turn-off Delay Time			33		
t_f	Turn-off Fall Time			16		
Gate Charge Characteristics ⁽⁵⁾						
Q_g	Total Gate Charge	$V_{DS}=48V, V_{GS}=10V,$ $I_{DS}=8A$		14	18	nC
Q_{gs}	Gate-Source Charge			2.9		
Q_{gd}	Gate-Drain Charge			5.2		

- Notes: ① Pulse width limited by safe operating area.
 ② Calculated continuous current based on maximum allowable junction temperature.
 ③ Limited by T_{Jmax} , $I_{AS}=10A$, $V_{DD}=48V$, $R_G=50\Omega$, Starting $T_J=25^\circ C$.
 ④ Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 ⑤ Guaranteed by design, not subject to production testing.

Typical Characteristics

