Description

N-channel Enhancement Mode Power MOSFET

Features

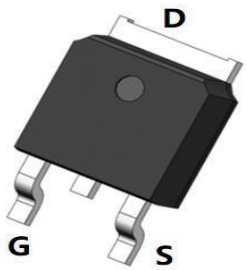
- 100V,15A
  $R_{DS(ON)}$<105mΩ@V_{GS}=10V (Typ. 80 mΩ)
  $R_{DS(ON)}$<117mΩ@V_{GS}=4.5V(Typ. 90 mΩ)
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$and LowGate Charge

Applications

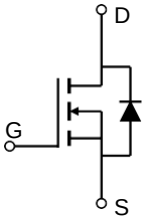
- Load Switch
- PWM Application
- Power Management

100%UISTESTED!
100%ΔVdsTESTED!

RoHS



TO-252-3L



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	Outline	Package	ReelSize	Reel(pcs)	PerCarton (pcs)
OCT15N10K	OCT15N10K	TAPING	TO-252-3L	13"	2500	25000

Absolute Maximum Ratings(@T_C=25°Cunlessotherwisespecified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-to-Source Voltage		100	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C=25°C	15	A
		T_C=100°C	9	
I_{DM}	Pulsed Drain Current[1]		60	A
E_{AS}	Single Pulsed Avalanche Energy[2]		20	mJ
P_D	Power Dissipation	T_C=25°C	46	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		2.7	°C/W
T_J,T_{STG}	Junction & Storage Temperature Range		-55 to150	°C

Electrical Characteristics(T_J=25°Cunlessotherwisespecified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D=250μA,V_{GS}=0V	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V,V_{GS}=0V	-	-	1.0	μ A
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.2	1.8	2.4	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(3)	V_{GS}=10V,I_D=10A	-	80.0	105.0	mΩ
		V_{GS}=4.5V,I_D=8A	-	90.0	117.0	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=25V, f=1MHz	-	1084	-	pF
C_{oss}	Output Capacitance		-	52	-	pF
C_{rss}	Reverse Transfer Capacitance		-	41	-	pF
Q_g	Total Gate Charge	V_{GS}=0 to10V V_{DS}=50V,I_D=10A	-	22	-	nC
Q_{gs}	Gate Source Charge		-	3	-	nC
Q_{gd}	Gate Drain("Miller")Charge		-	6.1	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V,V_{DD}=50V I_D=10A,R_{GEN}=3Ω	-	14	-	ns
t_r	Turn-On Rise Time		-	5.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	28	-	ns
t_f	Turn-Off Fall Time		-	5.2	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	15	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	60	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V,I_S=15A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=10A,di/dt=100A/us	-	30	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	42	-	nC

Notes: 1.RepetitiveRating:Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25C,V_{DD}=50V,V_G=10V,R_G=25ohm,L=0.5mH,I_{AS}=9A

3. PulseTest:PulseWidth≤300μs,DutyCycle≤0.5%.

Test Circuit

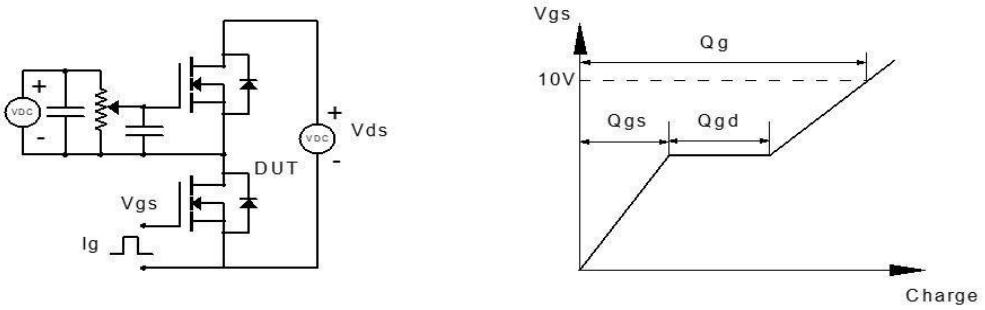


Figure1:GateChargeTestCircuit&Waveform

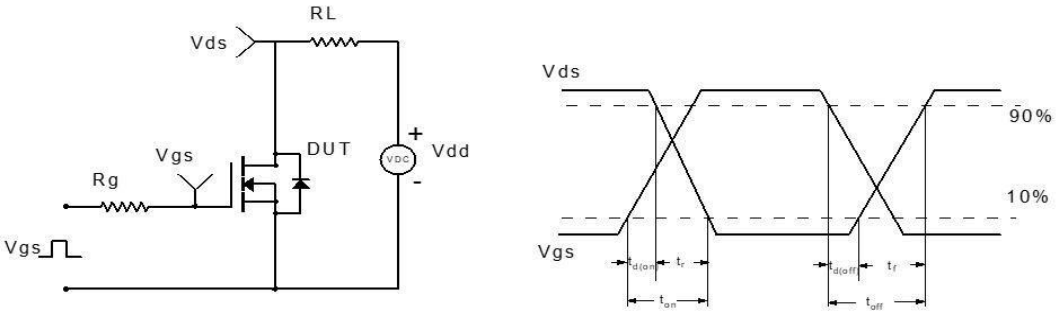


Figure2:ResistiveSwitchingTestCircuit&Waveform

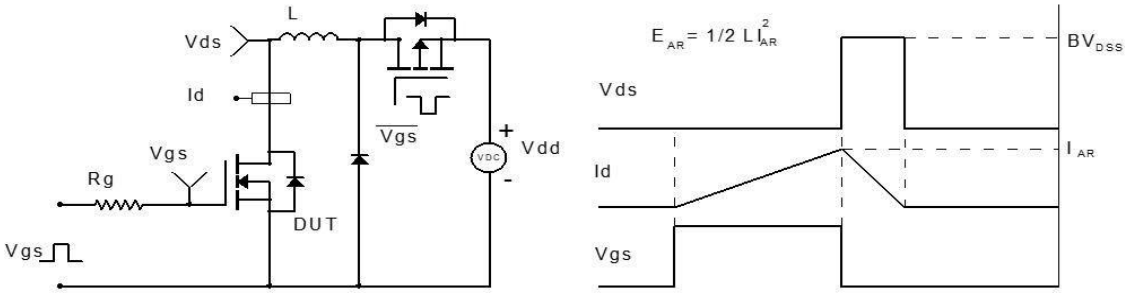


Figure3:UnclampedInductiveSwitchingTestCircuit&Waveform

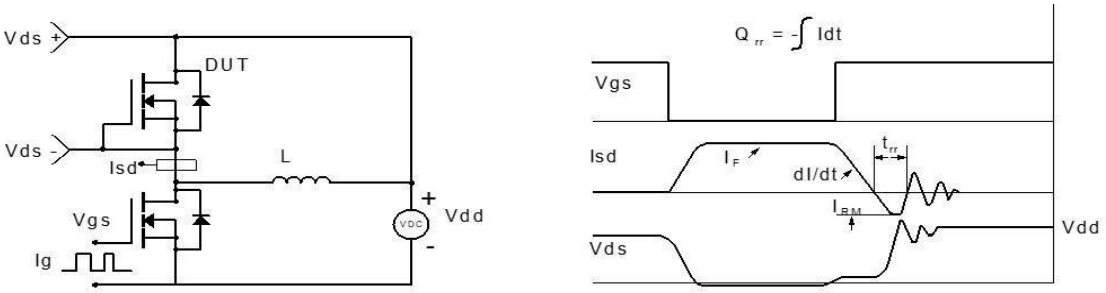
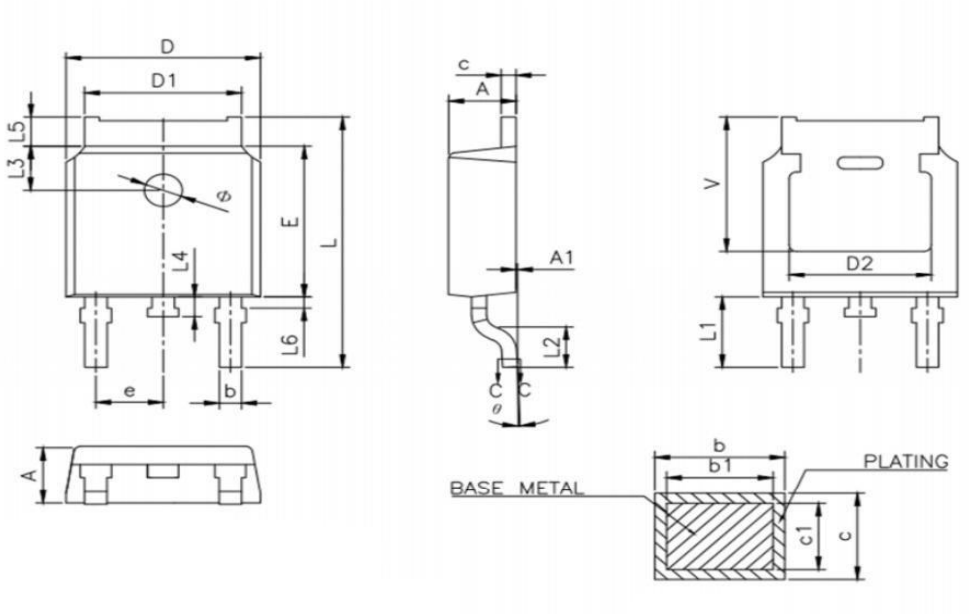


Figure4:Diode Recovery Test Circuit & Waveform

Package Mechanical Data(TO-252-3L)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.00	--	0.127
b	0.66	--	0.86
b1	0.65	0.76	0.81
D	6.50	6.60	6.70
D1	5.10	5.33	5.46
c	0.47	--	0.60
c1	0.46	0.51	0.56
D2	4.83 REF.		
E	6.00	6.10	6.20
e	2.186	2.286	2.386
L	9.80	10.10	10.40
L1	2.90 REF.		
L2	1.40	1.50	1.60
L3	1.80 REF.		
L4	0.60	0.80	1.00
L5	0.90	--	1.25
L6	0.15	--	0.75
Φ	1.10	--	1.30
θ	0°	--	8°
V	5.40 REF		