

UNISONIC TECHNOLOGIES CO., LTD

2NM100

Preliminary

2.0A, 1000V N-CHANNEL SUPER-JUNCTION MOSFET

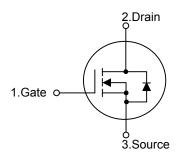
DESCRIPTION

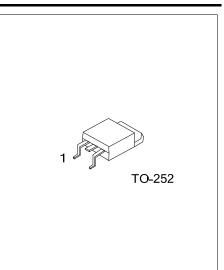
The UTC **2NM100** is an Super Junction MOSFET Structure. It uses UTC advanced planar stripe, DMOS technology to provide customers perfect switching performance, minimal on-state resistance.

The UTC **2NM100** is universally applied in electronic lamp ballasts based on half bridge topology, high efficiency switched mode power supplies, active power factor correction, etc.

FEATURES

- * $R_{DS(ON)} \le 4.6 \ \Omega \ @ V_{GS} = 10V, \ I_D = 1.0A$
- * High switching speed
- * High breakdown voltage
- SYMBOL

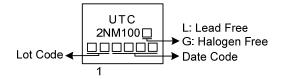




ORDERING INFORMATION

Ordering Number		Daakaga	Pin Assignment			Decking		
Lead Free	Halogen Free	Package	1	2	3	Packing		
2NM100L-TN3-R	M100L-TN3-R 2NM100G-TN3-R		G	D	S	Tape Reel		
Note: Pin Assignment: G: Gate D: Drain S: Source								
2NM100G-TN3-R								
	(1)Packing Type		(1) R: Tape Reel					
(2)Package Type		(2) TN3: TO-252						
	- (3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free				_ead Free		

MARKING



ABSOLUTE MAXIMUM RATINGS (Tc=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V _{DSS}	1000	V	
Drain-Gate Voltage		V _{DGR}	1000	V	
Gate-Source Voltage		V _{GSS}	±30	V	
Drain Current	Continuous	I _D	2	А	
	Pulsed	I _{DM}	4	А	
Peak Diode Recovery dv/dt (Note 3)		dv/dt	2.7	V/ns	
Power Dissipation		PD	21	W	
Junction Temperature		TJ	-55 ~ +150	°C	
Storage Temperature Range		T _{STG}	-55 ~ +150	°C	

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse width limited by maximum junction temperature

3. $I_{SD} \le 2.0A$, di/dt $\le 200A/\mu s$, $V_{DD} \le BV_{DSS}$, Starting $T_J = 25^{\circ}C$

THERMAL DATA

SYMBOL	RATING	UNIT	
θ _{JA}	110	°C/W	
θ _{JC}	5.9 (Note)	°C/W	
	θ _{JA}		

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

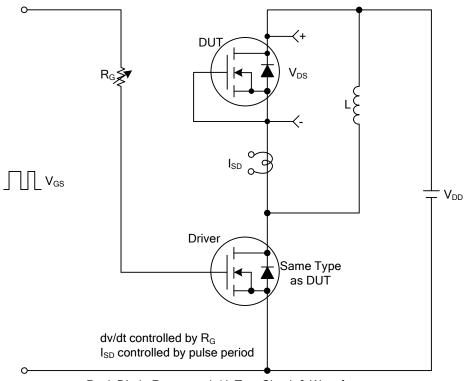
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =0.25mA, V _{GS} =0V, T _J =25°C	1000			V
Drain-Source Leakage Current		1	V _{DS} =1000V, V _{GS} =0V, T _J =25°C			10	μA
		I _{DSS}	V _{DS} =1000V, V _{GS} =0V, T _C =125°C			100	μA
Gate-Source Leakage Current	Forward		V _{GS} =+30V, V _{DS} =0V			+100	nA
	Reverse	I _{GSS}	V _{GS} =-30V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250µA	2.5		4.5	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =1.0A			4.6	Ω
DYNAMIC PARAMETERS							
Input Capacitance		CISS			212		pF
Output Capacitance		Coss	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		65		рF
Reverse Transfer Capacitance		C _{RSS}			4		рF
SWITCHING PARAMETERS							
Total Gate Charge		Q_{G}			15		nC
Gate to Source Charge		Q _{GS}	V _{DS} =800V, V _{GS} =10V, I _D =2.0A		6.2		nC
Gate to Drain Charge		Q_{GD}	(Note 1,2)		3.2		nC
Turn-ON Delay Time		t _{D(ON)}			6		ns
Rise Time		t _R	V _{DD} =100V, V _{GS} =10V, I _D =2.0A,		17		ns
Turn-OFF Delay Time		t _{D(OFF)}	R _G =25Ω (Note 1,2)		31		ns
Fall-Time					40		ns
SOURCE- DRAIN DIODE RATI	NGS AND	CHARACTER	RISTICS				
Maximum Body-Diode Continuous Current		I _S	T _c =25°C			2	Α
Maximum Body-Diode Pulsed Current		I _{SM}	T _C =25°C			4	Α
Drain-Source Diode Forward Voltage		V _{SD}	I _F =2.0A, V _{GS} =0V			1.4	V
Reverse Recovery Time		t _{rr}	I _S =2.0A,V _{GS} =0V,		380		ns
Reverse Recovery Charge		Q _{rr}	dl _F /dt=100A/µs (Note 1)		2		μC
Notos: 1. Pulso Tost: Pulso widt	h < 200up		· · · ·	•		•	

Notes: 1. Pulse Test: Pulse width \leq 300µs, Duty cycle \leq 2%.

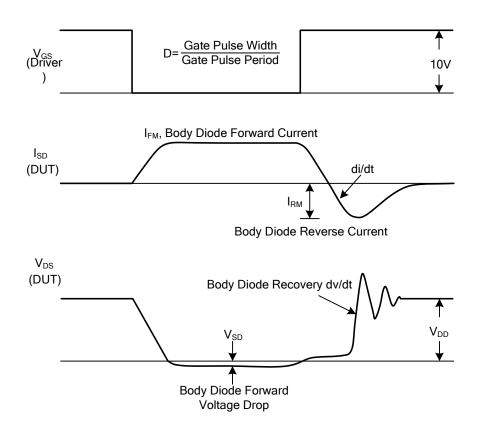
2. Essentially independent of operating temperature.



TEST CIRCUITS AND WAVEFORMS

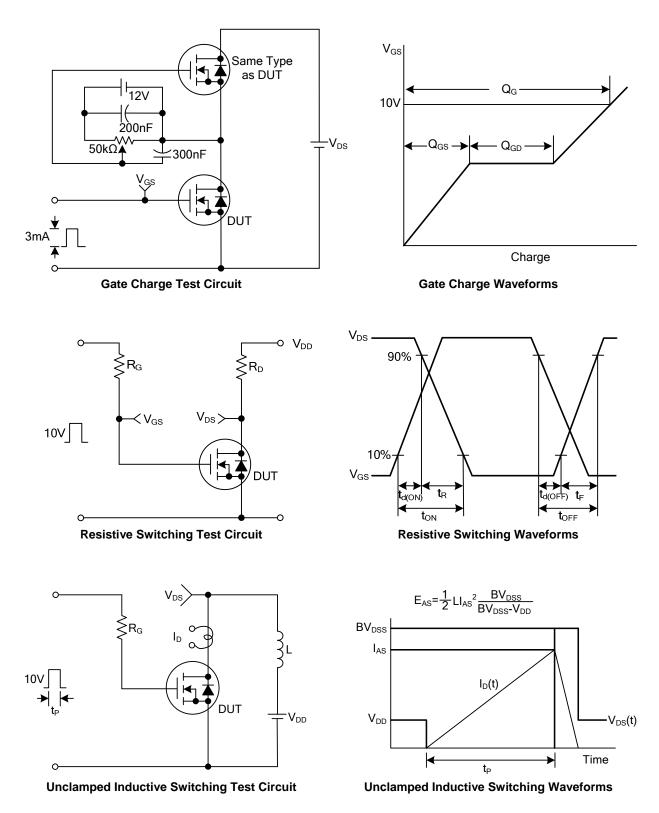


Peak Diode Recovery dv/dt Test Circuit & Waveforms





TEST CIRCUITS AND WAVEFORMS(Cont.)





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