



02N50

Preliminary

Power MOSFET

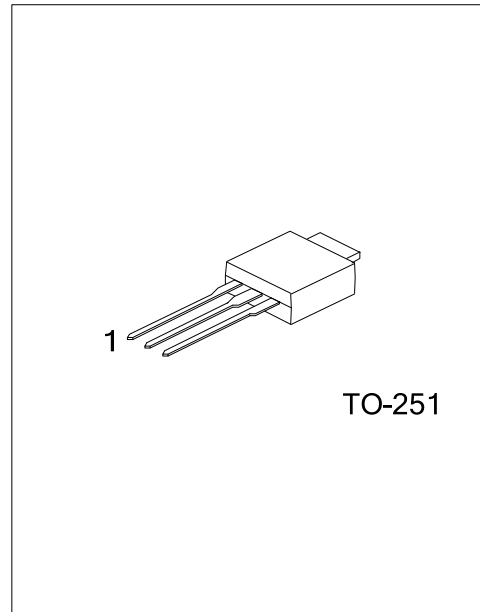
0.2A, 500V N-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **02N50** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high breakdown voltage

FEATURES

- * $R_{DS(on)}=75\Omega$ @ $V_{GS}=10V$, $I_D=0.15A$
- * High breakdown voltage



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
02N50L-TM3-T	02N50G-TM3-T	TO-251	G	D	S	Tube

Note: Pin Assignment: G: Gate D: Drain S: Source

<p>02N50L-TM3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TM3: TO-251</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	500	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	Continuous	I_D	0.2	A
	Pulsed	I_{DM}	1	A
Avalanche Current (Note 1)		I_{AR}	0.2	A
Power Dissipation		P_D	40	W
Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: 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.

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	500			V	
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=500\text{V}, V_{GS}=0\text{V}, T_A=25^{\circ}\text{C}$			10	μA	
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+30\text{V}, V_{DS}=0\text{V}$			+100	nA	
	Reverse		$V_{GS}=-30\text{V}, V_{DS}=0\text{V}$			-100	nA	
ON CHARACTERISTICS								
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.5		4.5	V	
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=0.15\text{A}, T_A=25^{\circ}\text{C}$		62	75	Ω	
DYNAMIC PARAMETERS								
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		200		pF	
Output Capacitance		C_{OSS}				20		pF
Reverse Transfer Capacitance		C_{RSS}				8		pF
SWITCHING PARAMETERS								
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, I_D=0.2\text{A}, V_{PS}=400\text{V}$		3.0	4.5	nC	
Gate to Source Charge		Q_{GS}			0.45	0.7	nC	
Gate to Drain Charge		Q_{GD}			0.4	0.75	nC	
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=250\text{V}, I_D=0.2\text{A}, R_G=25\Omega$		9		ns	
Rise Time		t_R			4		ns	
Turn-OFF Delay Time		$t_{D(OFF)}$			28		ns	
Fall-Time		t_F			45		ns	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS								
Maximum Body-Diode Continuous Current		I_S				0.2	A	
Maximum Body-Diode Pulsed Current		I_{SM}				1	A	
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=0.2\text{A}, V_{GS}=0\text{V}$			1	V	

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