

UNISONIC TECHNOLOGIES CO., LTD

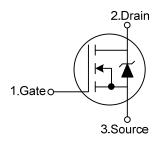
UTD20N03 Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER M OSFET

■ FEATURES

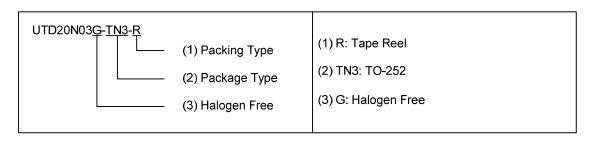
- * Ambient operating temperature: 175°C
- * Low drain-source and low on-resistance
- * Logic level
- * Perfect gate charge × R_{DS(ON)} product
- * Superior thermal resistance
- * Avalanche rated
- * Specified dv/dt
- * For fast switching buck converters
- * Halogen free

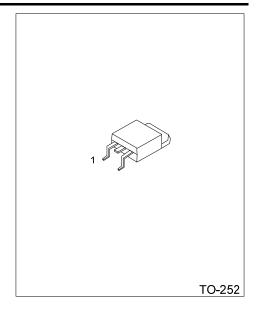
■ SYMBOL



■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Dooking	
		1	2	3	Packing	
UTD20N03G-TN3-R	TO-252	G	D	S	Tape Reel	





UTD20N03 Power MOSFET

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		VDSS	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (T _C =25°C)		I _D	30	Α
Pulsed Drain Current (T _C =25°C)		I _{DM}	120	Α
Avalanche Energy	Single Pulsed (Note 2)	E _{AS}	15	mJ
	Repetitive (Note 3)	E _{AR}	6	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	6	kV/μs
Power Dissipation (T _C =25°C)		P _D	60	W
Junction Temperature		TJ	+175	°C
Storage Temperature		T _{STG}	-55 ~ +175	°C

- Note: 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. I_D =15 A, V_{DD} =25 V, R_{GS} =25 Ω
 - 3. Repetitive Rating: Pulse width limited by T_J
 - 4. I_S =30 A, V_{DS} =24 V, di/dt =100A/ μ s, $T_{J(MAX)}$ = 175 °C

■ THERMAL DATA

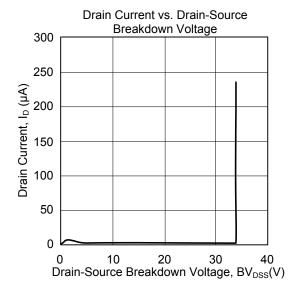
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ_{JA}			100	°C/W
Junction to Case	θ_{JC}		1.7	2.5	°C/W

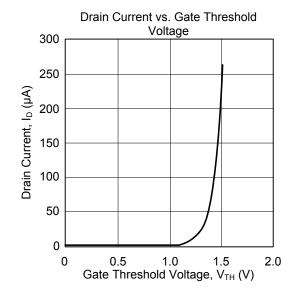
■ ELECTRICAL CHARACTERISTICS (T」=25°C, unless otherwise specified)

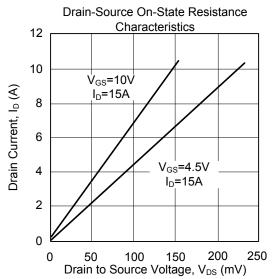
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0 \text{ V}, I_D = 1 \text{ mA}$	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30 V,V _{GS} =0 V		0.01	1	μΑ
Gate-Source Leakage Current	I_{GSS}	V _{GS} =20 V, V _{DS} =0 V		1	100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$, $I_D = 25\mu A$	1.2	1.6	2	V
Dunin Course On Otata Basistanas	R _{DS(ON)}	V _{GS} =4.5 V, I _D =15 A		22.9	31	mΩ
Drain-Source On-State Resistance		V _{GS} =10 V, I _D =15 A		15.5	20	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}			530	700	pF
Output Capacitance	Coss	V _{DS} =25 V, V _{GS} =0 V, f =1MHz		200	275	pF
Reverse Transfer Capacitance	C _{RSS}			60	90	pF
Gate Resistance	R_G			1.3		Ω
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}			6.2	9.3	ns
Turn-ON Rise Time	t_R	V _{DD} =15 V, V _{GS} =10 V,		11	17	ns
Turn-OFF Delay Time	t _{D(OFF)}	I_D =15 A, R_G =12.7 Ω		23	34	ns
Turn-OFF Fall-Time	t _F			18	27	ns
Total Gate Charge	Q_G	V _{DD} =15 V, I _D =15 A,V _{GS} =5V		8.4	11	nC
Gate Source Charge	Q_GS	V 45 V L 45 A		2.5	3.1	nC
Gate Drain Charge	Q_GD	$V_{DD} = 15 \text{ V}, I_D = 15 \text{ A}$		6.4	9.6	nC
SOURCE- DRAIN DIODE RATINGS AND	CHARACTE	RISTICS				
Inverse Diode Forward Voltage	V_{SD}	I _F =30 A, V _{GS} =0 V		1.1	1.4	V
Maximum Continuous Drain-Source Diode					30	Α
Forward Current	I _S	T _C =25°C			30	А
Maximum Pulsed Drain-Source Diode	I _{SM}	10-25 0			120	Α
Forward Current	ISM				120	_ ^
Reverse Recovery Time	t _{RR}	$V_R = 15 \text{ V}, I_F = I_S, \text{ dI/dt} = 100 \text{A/} \mu \text{s}$		15	18	ns
Reverse Recovery Charge	Q_{RR}	V _K = 10 V, 1 _F = 15, αι/αι = 100 A/μ5		2	3	nC

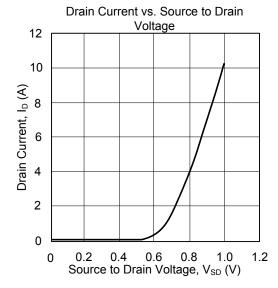
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■ TYPICAL CHARACTERISTICS









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