



UT20N03

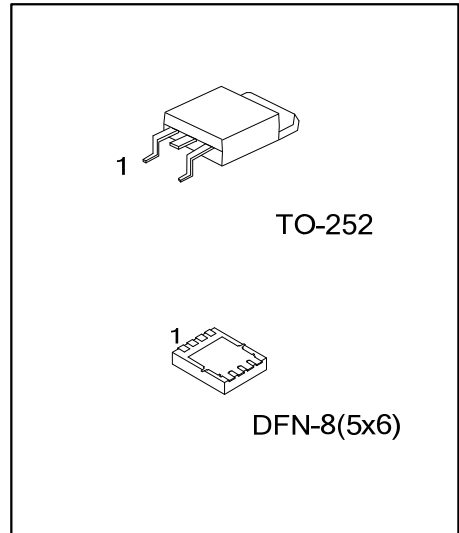
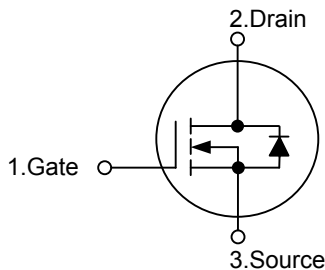
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

■ FEATURES

- * $R_{DS(ON)} < 20m\Omega @ V_{GS}=10V, I_D=15A$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT20N03L-TN3-R	UT20N03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
-	UT20N03G-K08-5060-R	DFN-8(5x6)	S	S	S	G	D	D	D	D	Tape Reel

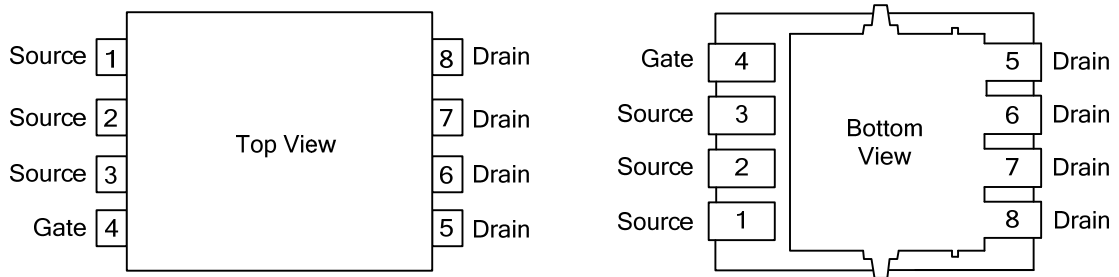
Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UT20N03L-TN3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TN3: TO-252, K08-5060: DFN-8(5x6)</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
--	--

■ MARKING

TO-252	DFN-8(5x6)

■ PIN CONFIGURATION



DFN-8(5×6)

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±20	V
Continuous Drain Current		I _D	20	A
Pulsed Drain Current (Note 1)		I _{DM}	120	
Avalanche Energy	Single Pulsed (Note 2)	E _{AS}	15	mJ
	Repetitive (Note 1)	E _{AR}	6	
Peak Diode Recovery (Note 3)		dv/dt	6	KV/μs
Power Dissipation	TO-252	P _D	60	W
	DFN-8(5×6)		21	W
Junction Temperature		T _J	+175	°C
Storage Temperature		T _{STG}	-55 ~ +175	°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.

■ THERMAL DATA

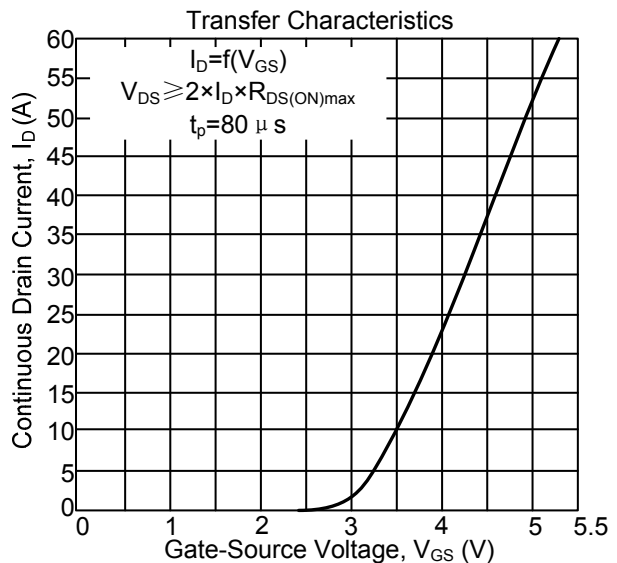
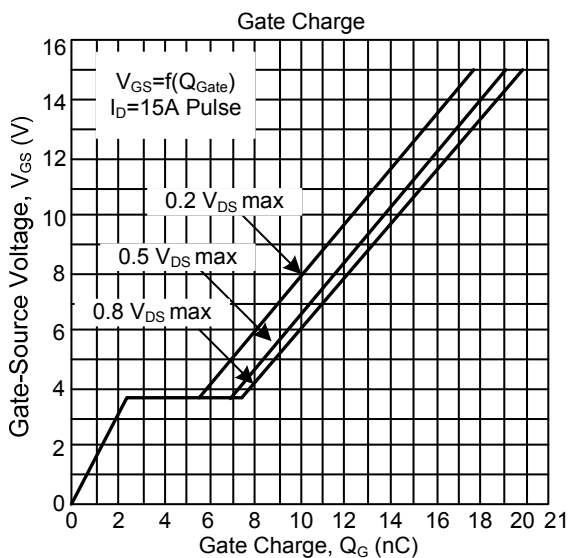
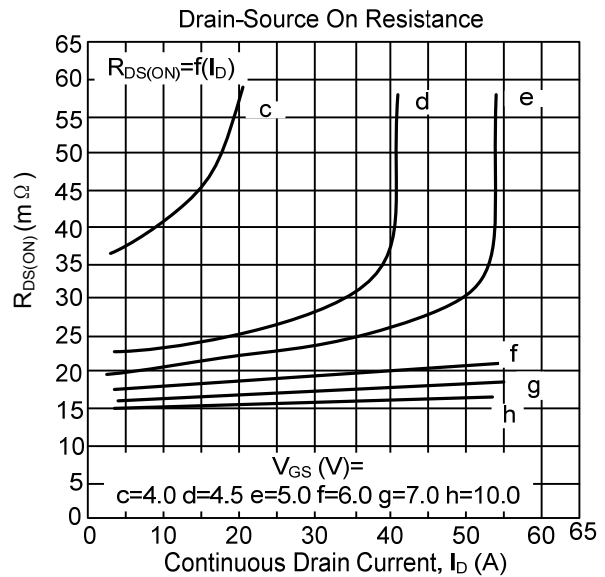
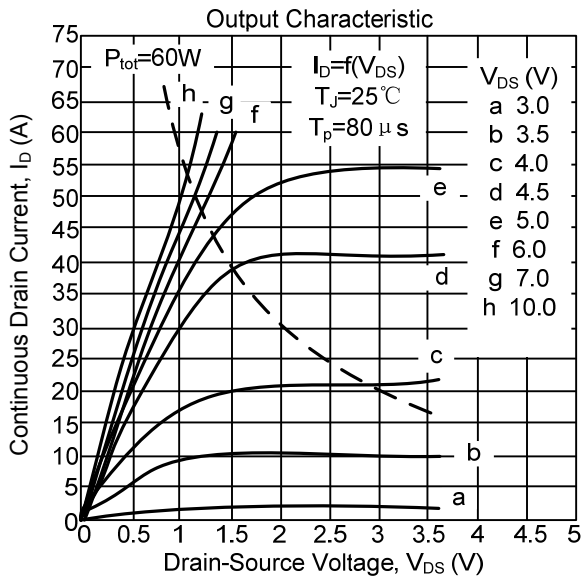
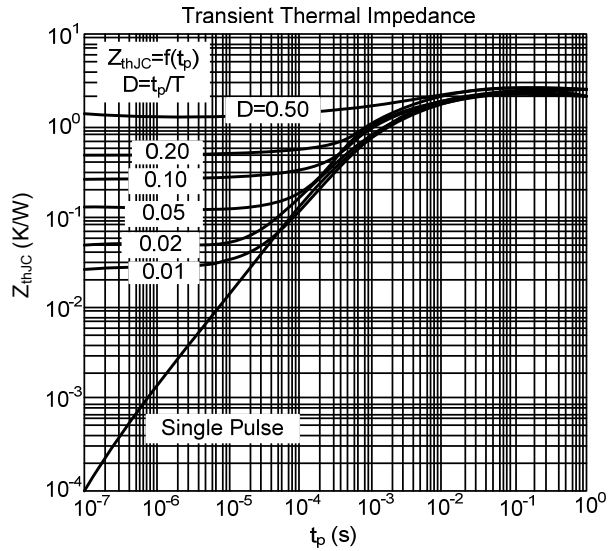
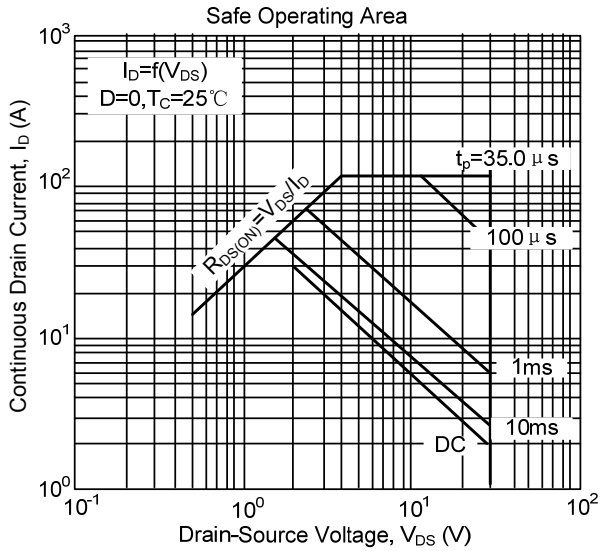
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	TO-252	θ _{JA}			100	°C/W
	DFN-8(5×6)				46	
Junction to Case	TO-252	θ _{JC}		1.7	2.5	°C/W
	DFN-8(5×6)				6	

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

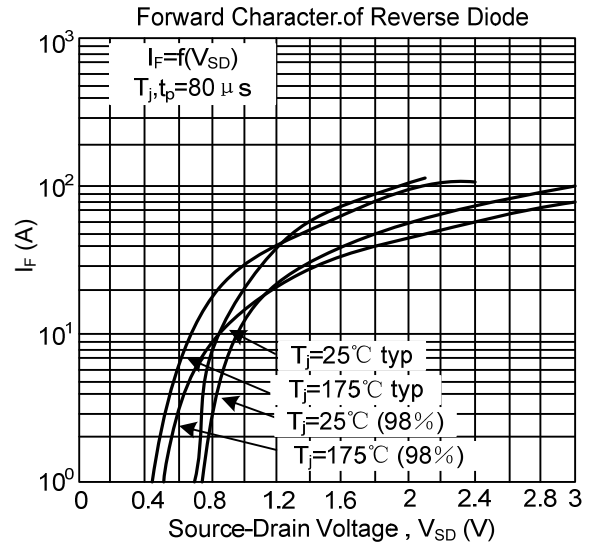
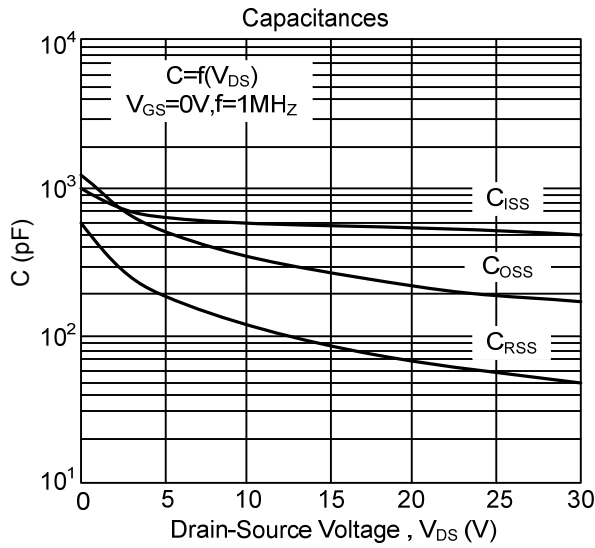
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =25 μA	1.2	1.6	2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =15A		22.9	31	mΩ
		V _{GS} =10V, I _D =15A		15.5	20	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =25 V, V _{GS} =0V, f=1MHz		530	700	pF
Output Capacitance	C _{OSS}			200	275	
Reverse Transfer Capacitance	C _{RSS}			60	90	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DD} =15V, R _G =12.7Ω, I _D =15A		6.2	9.3	ns
Turn-On Rise Time	t _R			11	17	
Turn-Off Delay Time	t _{D(OFF)}			23	24	
Turn-Off Fall-Time	t _F			18	27	
Gate-Source Charge	Q _{GS}	V _{DD} =15V, I _D =15A		2.5	3.1	nC
Gate-Drain Charge	Q _{GD}			6.4	9.6	
Gate Charge Total	Q _G	V _{DD} =15V, I _D =15A, V _{GS} =0~5V		8.4	11	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _F =30A		1.1	1.4	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				30	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				120	
Reverse Recovery Time	t _{RR}	V _R =15V, I _F =I _S , di _F /dt=100A/μs		15	18	ns
Reverse Recovery Charge	Q _{RR}				2	3

- Notes:
1. Repetitive Rating : Pulse width limited by maximum junction temperature
 2. I_D = 15A, V_{DD} = 25V, R_G = 25 Ω, Starting T_J = 25°C
 3. I_S=30A, V_{DS}=24V, di/dt=200A/μs, T_{J(MAX)}=175°C
 4. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%
 5. Essentially independent of operating temperature

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.