



UT20N03

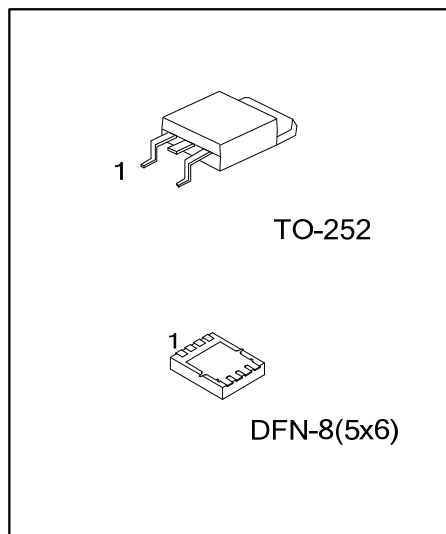
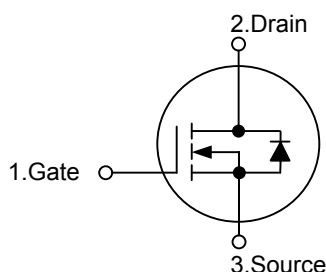
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

■ FEATURES

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

■ SYMBOL



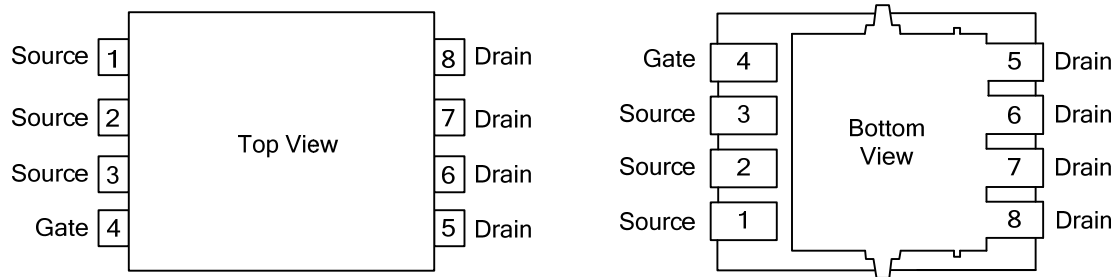
■ ORDERING INFORMATION

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
UT20N03L-TN3-T	UT20N03G-TN3-T	TO-252	G	D	S	-	-	-	-	-	Tube
UT20N03L-K08-5060-R	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

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

■ PIN CONFIGURATION



DFN-8(5x6)

■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 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	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

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.

■ THERMAL DATA

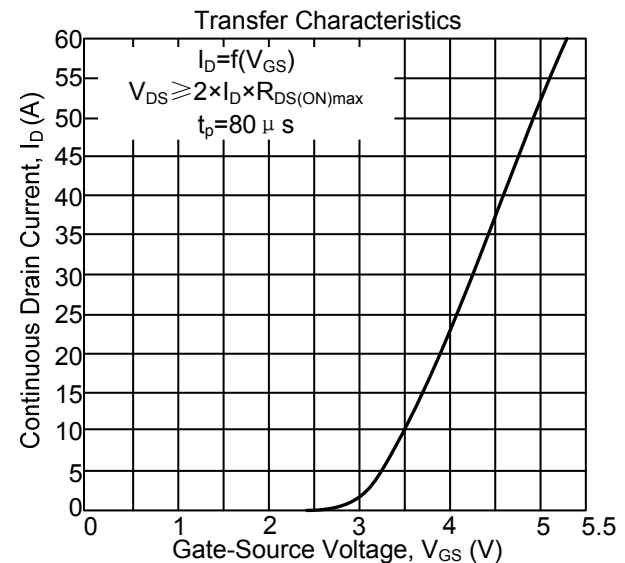
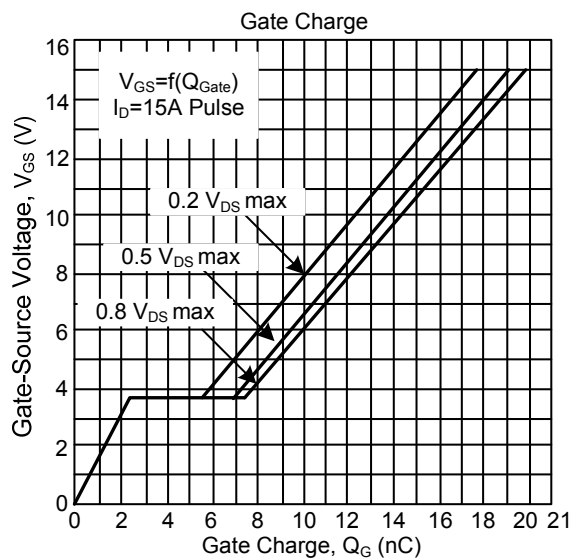
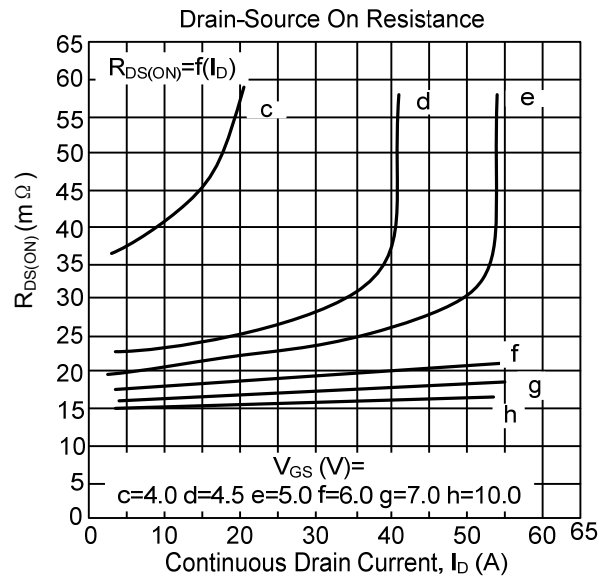
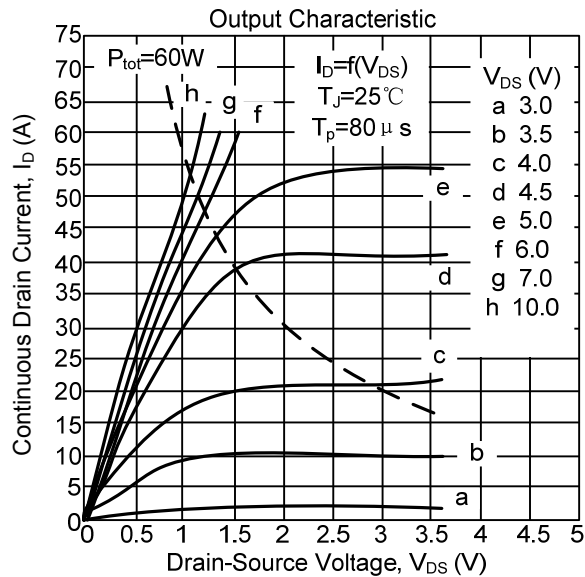
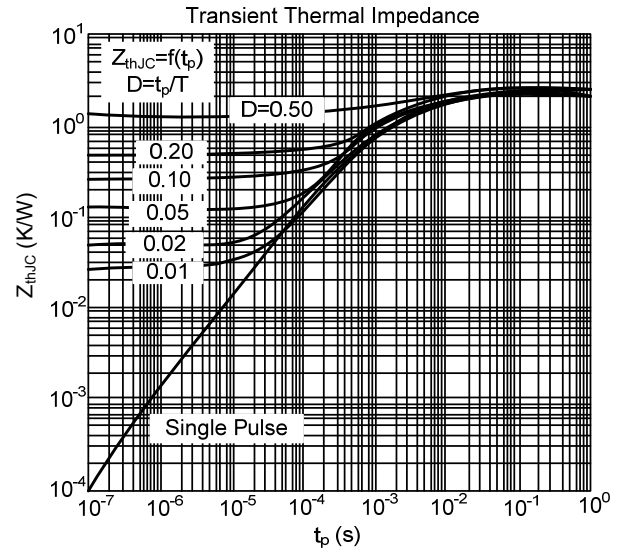
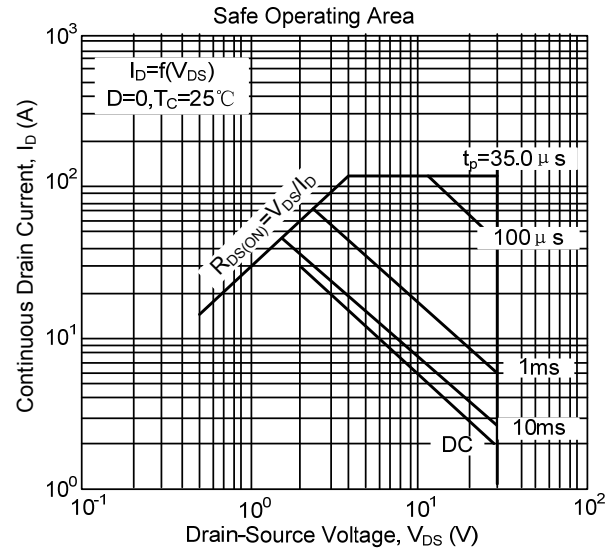
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	TO-252	θ_{JA}			100	$^{\circ}\text{C/W}$
	DFN-8(5×6)				46	
Junction to Case	TO-252	θ_{JC}		1.7	2.5	$^{\circ}\text{C/W}$
	DFN-8(5×6)				6	

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

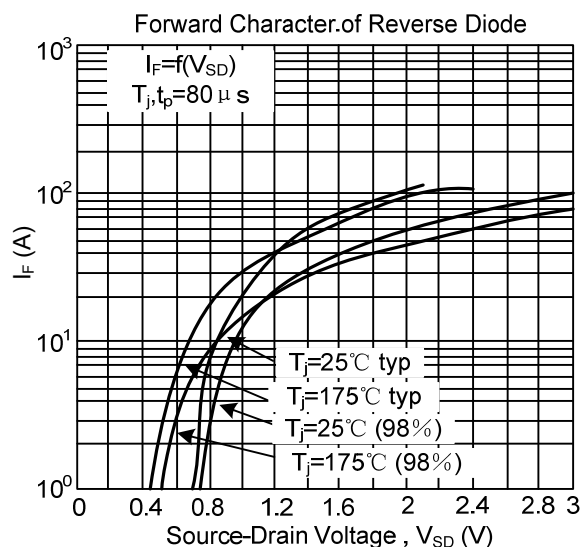
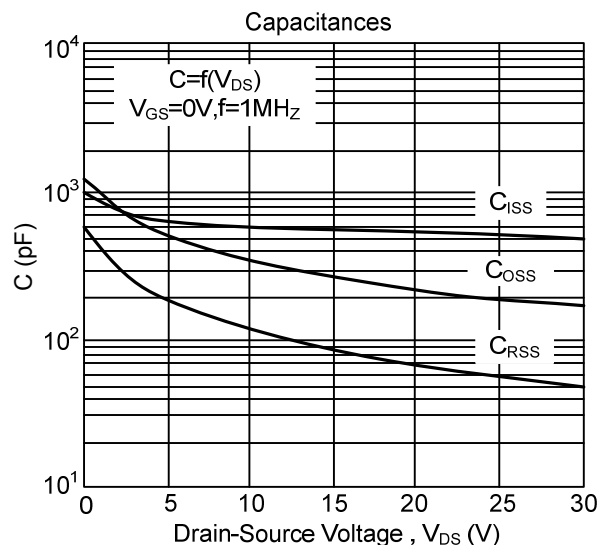
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
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	nC

- 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.)



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