



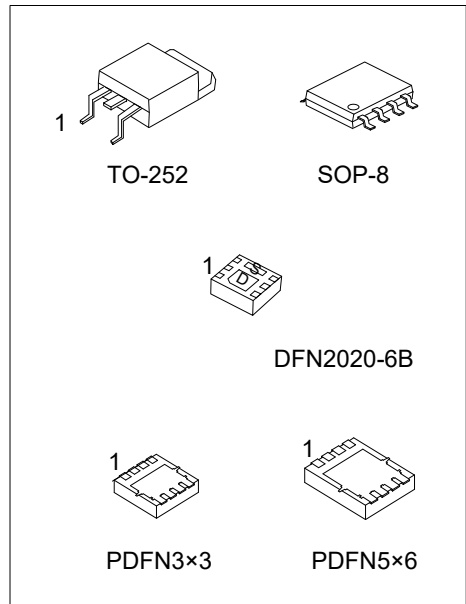
UT20N03

Power MOSFET

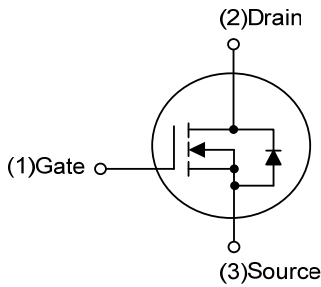
N-CHANNEL ENHANCEMENT MODE

FEATURES

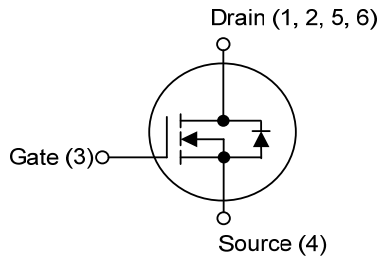
- * $R_{DS(ON)} \leq 20\text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D = 15\text{A}$
- $R_{DS(ON)} \leq 31\text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D = 15\text{A}$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified



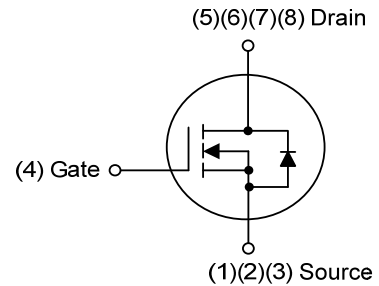
SYMBOL



TO-252



DFN2020-6B



SOP-8/PDFN3x3/PDFN5x6

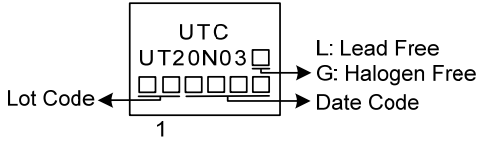
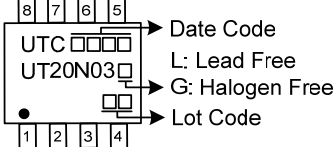
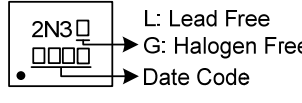
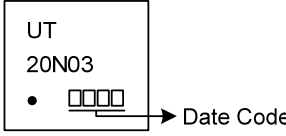
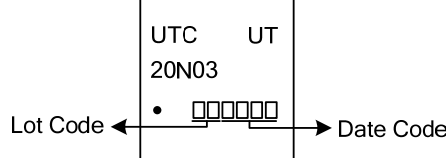
ORDERING INFORMATION

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-S08-R	UT20N03G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel
UT20N03L-K06B-2020-R	UT20N03G-K06B-2020-R	DFN2020-6B	D	D	G	S	D	D	-	-	Tape Reel
UT20N03L-P3030-R	UT20N03G-P3030-R	PDFN3x3	S	S	S	G	D	D	D	D	Tape Reel
UT20N03L-P5060-R	UT20N03G-P5060-R	PDFN5x6	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT20N03G-TN3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) TN3: TO-252, S08: SOP-8, K06B-2020: DFN2020-6B, P3030: PDFN3x3, P5060: PDFN5x6 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

TO-252	SOP-8
 <p>UTC UT20N03 Lot Code 1 L: Lead Free G: Halogen Free Date Code</p>	 <p>8 7 6 5 UTC UT20N03 Date Code L: Lead Free G: Halogen Free Lot Code 1 2 3 4</p>
DFN2020-6B	PDFN3x3
 <p>2N3 L: Lead Free G: Halogen Free Date Code</p>	 <p>UT 20N03 Date Code</p>
PDFN5x6	-
 <p>UTC UT 20N03 Lot Code Date Code</p>	-

■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^\circ\text{C}$, 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 2)		I_{DM}	40	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	15	mJ
Power Dissipation	TO-252	P_D	30	W
	SOP-8		0.8	W
	DFN2020-6B		1.25	W
	PDFN3×3		16	W
	PDFN5×6		18	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

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. $L = 0.5\text{mH}$, $I_{AS} = 7.8\text{A}$, $V_{DD} = 30\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-252	θ_{JA}	50	$^\circ\text{C/W}$
	SOP-8		125	$^\circ\text{C/W}$
	DFN2020-6B		100	$^\circ\text{C/W}$
	PDFN3×3		75	$^\circ\text{C/W}$
	PDFN5×6		65	$^\circ\text{C/W}$
Junction to Case	TO-252	θ_{JC}	4.16	$^\circ\text{C/W}$
	SOP-8		110	$^\circ\text{C/W}$
	DFN2020-6B		10.4	$^\circ\text{C/W}$
	PDFN3×3		7.8	$^\circ\text{C/W}$
	PDFN5×6		6.9	$^\circ\text{C/W}$

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}	V _{GS} =0V, 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} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =15A			20	mΩ
		V _{GS} =4.5V, I _D =15A			31	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =25 V, V _{GS} =0V, f=1MHz		390		pF
Output Capacitance	C _{OSS}			110		
Reverse Transfer Capacitance	C _{RSS}			92		
SWITCHING CHARACTERISTICS						
Gate Charge Total	Q _G	V _{DS} =15V, V _{GS} =10V, I _D =10A, I _G =1mA (Note 1, 2)		16.6		nC
Gate-Source Charge	Q _{GS}			1.7		
Gate-Drain Charge	Q _{GD}			3.1		
Turn-On Delay Time	t _{D(ON)}	V _{DD} =15V, V _{GS} =10V, I _D =10A, R _G =25Ω (Note 1, 2)		12		ns
Turn-On Rise Time	t _R			13		
Turn-Off Delay Time	t _{D(OFF)}			42		
Turn-Off Fall-Time	t _F			35		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				20	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				40	
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _F =20A		1.1	1.4	V

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
 2. Essentially independent of operating temperature.

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