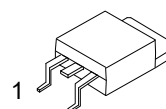
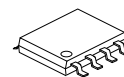


**UT20N03****Power MOSFET****N-CHANNEL
ENHANCEMENT MODE****■ FEATURES**

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



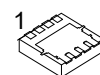
TO-252



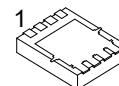
SOP-8



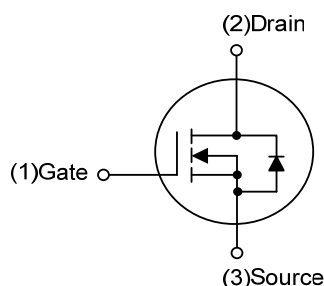
DFN2020-6B



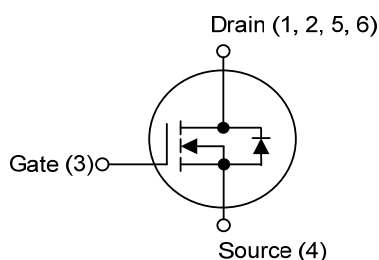
PDFN3×3



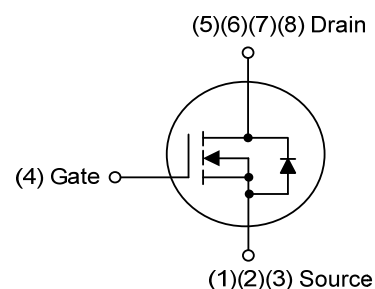
PDFN5×6

■ SYMBOL

TO-252



DFN2020-6B



SOP-8/PDFN3×3/PDFN5×6

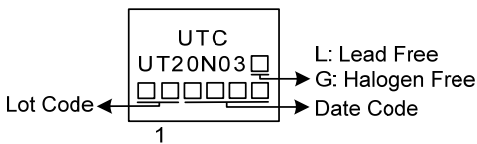
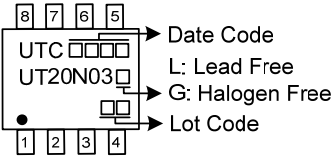
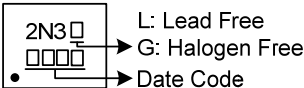
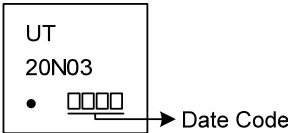
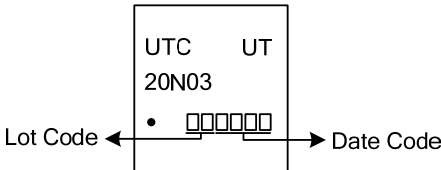
■ ORDERING INFORMATION

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	PDFN3×3	S	S	S	G	D	D	D	D	Tape Reel
UT20N03L-P5060-R	UT20N03G-P5060-R	PDFN5×6	S	S	S	G	D	D	D	D	Tape Reel

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

UT20N03G-TN3-R 		(1) R: Tape Reel (2) TN3: TO-252, S08: SOP-8, K06B-2020: DFN2020-6B P3030: PDFN3×3, P5060: PDFN5×6 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

TO-252	SOP-8
	
DFN2020-6B	PDFN3x3
	
PDFN5x6	-
	-

■ 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}	40	A
Avalanche Energy	Single Pulsed (Note 2)	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		90	$^{\circ}\text{C/W}$
	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		156	$^{\circ}\text{C/W}$
	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** ($T_J = 25^\circ\text{C}$, 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 $\leq 300\mu s$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

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