



UTD02R075

Preliminary

Power MOSFET

15A, 20V N-CHANNEL POWER MOSFET

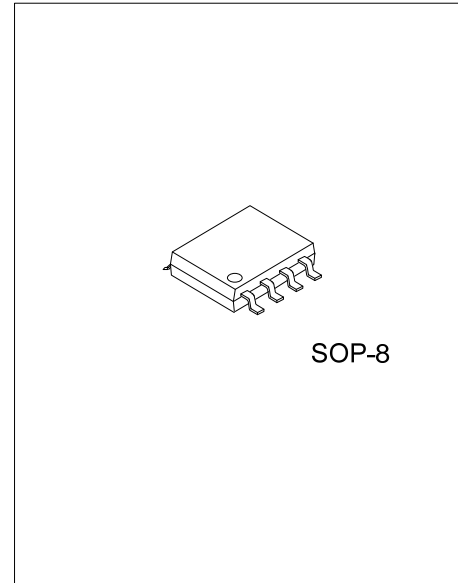
DESCRIPTION

The UTC **UTD02R075** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed, a minimum on-state resistance and low gate charge, etc.

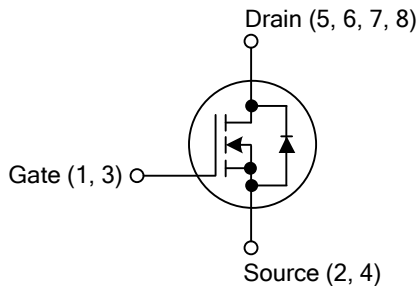
The UTC **UTD02R075** is suitable for DC-DC converters, load switch and battery protection.

FEATURES

- * $R_{DS(on)} < 7.5\text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=15\text{A}$
- * $R_{DS(on)} < 10\text{ m}\Omega$ @ $V_{GS}=2.5\text{V}$, $I_D=12\text{A}$
- * High switching speed
- * Low gate charge



SYMBOL



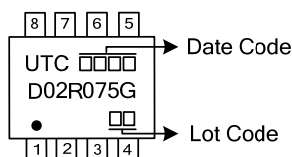
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UTD02R075G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTD02R075G-S08-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) S08: SOP-8 (3) G: Halogen Free and Lead Free
---	---

MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	20	V
Gate-Source Voltage		V _{GSS}	±8	V
Drain Current	Continuous (Note a)	I _D	15	A
	Pulsed	I _{DM}	50	A
Power Dissipation (Note a)		P _D	2.5	W
Junction Temperature		T _J	-55~+150	°C
Storage Temperature Range		T _{STG}	-55~+150	°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 CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note a)		θ _{JA}	50	°C/W
Junction to Case (Note)		θ _{JC}	25	°C/W

Note: θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. θ_{JC} is guaranteed by design while θ_{JA} is determined by the user's board design.

a) 50°C/W when mounted on a 0.5 in² pad of 2 oz copper.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	20			V
Breakdown Voltage Temperature Coefficient		ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =250μA		29		mV/°C
Drain-Source Leakage Current		I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =8V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-8V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS (Note)							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.9	1.5	V
Gate Threshold Voltage Temperature Coefficient		ΔV _{GS(TH)} /ΔT _J	I _D = 250 μA, Referenced to 25°C		-4		mV/°C
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =4.5V, I _D =15A		6	7.5	mΩ
			V _{GS} =4.5V, I _D =15A, T _J =125°C		9	13	mΩ
			V _{GS} =2.5V, I _D =12A		8	10	mΩ
On State Drain Current		I _{D(ON)}	V _{GS} =4.5V, V _{DS} =-5V	25			A
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		4700		pF
Output Capacitance		C _{OSS}			850		pF
Reverse Transfer Capacitance		C _{RSS}			310		pF
SWITCHING PARAMETERS (Note)							
Total Gate Charge		Q _G	V _{GS} =5V, V _{DS} =10V, I _D =15A		47	66	nC
Gate to Source Charge		Q _{GS}			7		nC
Gate to Drain Charge		Q _{GD}			10.5		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =10V, I _D =1A, R _{GEN} =6Ω, V _{GS} =4.5V		20	32	ns
Rise Time		t _R			27	44	ns
Turn-OFF Delay Time		t _{D(OFF)}			95	133	ns
Fall-Time		t _F			35	56	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S				2.1	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =2.1A, V _{GS} =0V (Note)	0.65	1.2		V

Note: Pulse Test: Pulse Width \leq 300us, Duty Cycle \leq 2.0%

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.