



15N25

Preliminary

Power MOSFET

**15A, 250V N-CHANNEL
POWER MOSFET**

■ DESCRIPTION

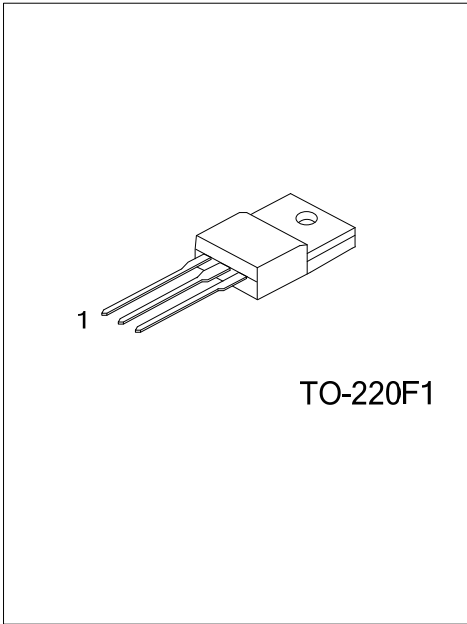
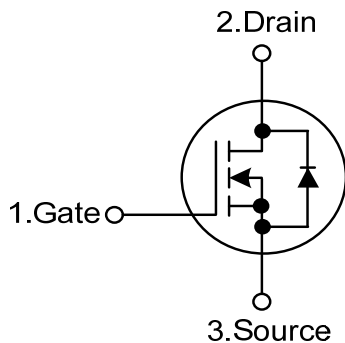
The UTC **15N25** is an N-channel enhancement MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **15N25** is universally applied in low voltage such as automotive, high efficiency switching for DC/DC converters and DC motor control, etc.

■ FEATURES

- * $R_{DS(ON)} < 0.32\Omega$ @ $V_{GS}=10V, I_D=7.5A$
- * Low Gate Charge (Typical 20nC)
- * Low C_{RSS} (Typical 25pF)
- * High Switching Speed

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
15N25L-TF1-T	15N25G-TF1-T	TO-220F1	G	D	S	Tube

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

<p>15N25L-TF1-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) T: Tube, R: Tape Reel (2) TF1: TO-220F1 (3) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	250	V
Gate-Source Voltage		V_{GSS}	± 30	V
Continuous Drain Current	Continuous	I_D	15	A
	Pulsed	I_{DM}	60	A
Single Pulsed Avalanche Current		I_{AS}	15	A
Single Pulsed Avalanche Energy		E_{AS}	340	mJ
Power Dissipation		P_D	83	W
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
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	RATINGS	UNIT
Junction to Ambient		θ_{JA}	110	$^{\circ}\text{C}/\text{W}$
Junction to Case		θ_{JC}	1.5	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	250			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=250\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+30\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-30\text{V}, V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=7.5\text{A}$		0.29	0.32	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		830	1080	pF
Output Capacitance		C_{OSS}			200	260	pF
Reverse Transfer Capacitance		C_{RSS}			25	33	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, V_{DD}=50\text{V}, I_D=1.3\text{A}$		67	75	nC
Gate to Source Charge		Q_{GS}			15		nC
Gate to Drain Charge		Q_{GD}			18		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=0.5\text{A}, R_G=25\Omega,$ $V_{GS}=10\text{V}, R_L=30\Omega$		40	50	ns
Rise Time		t_R			50	60	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			130	140	ns
Fall-Time		t_F			50	65	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				15	A
Maximum Body-Diode Pulsed Current		I_{SM}				60	A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=15\text{A}, V_{GS}=0\text{V}$			1.5	V

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