



15N25

Power MOSFET

15A, 250V N-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **15N25** is a 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.

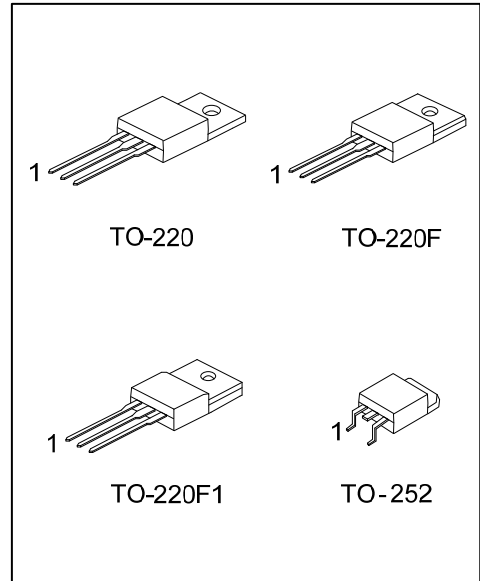
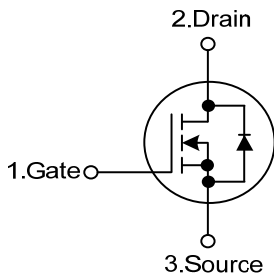
The UTC **15N25** is universally applied in low voltage such as automotive, high efficiency switching for AC/DC converters and DC motor control, etc.

FEATURES

* $R_{DS(ON)} \leq 0.32\Omega @ V_{GS}=10V, I_D=7.5A$

* High Switching Speed

SYMBOL



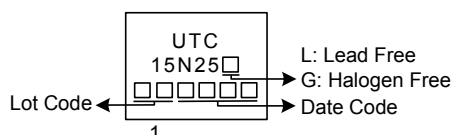
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
15N25L-TA3-T	15N25G-TA3-T	TO-220	G	D	S	Tube
15N25L-TF1-T	15N25G-TF1-T	TO-220F1	G	D	S	Tube
15N25L-TF3-T	15N25G-TF3-T	TO-220F	G	D	S	Tube
15N25L-TN3-R	15N25G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>15N25G-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF1: TO-220F1, TF3: TO-220F TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ 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}	170	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	8.0	V/ns
Power Dissipation	TO-220	P_D	104	W
	TO-220F		36	W
	TO-220F1			
	TO-252		85	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. $L=1.58\text{mH}$, $I_{AS}=15\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\ \Omega$, Starting $T_J = 25^{\circ}\text{C}$

4. $I_{SD}\leq 15\text{A}$, $di/dt\leq 200\text{A}/\mu\text{s}$, $V_{DD}\leq BV_{DSS}$, Starting $T_J = 25^{\circ}\text{C}$

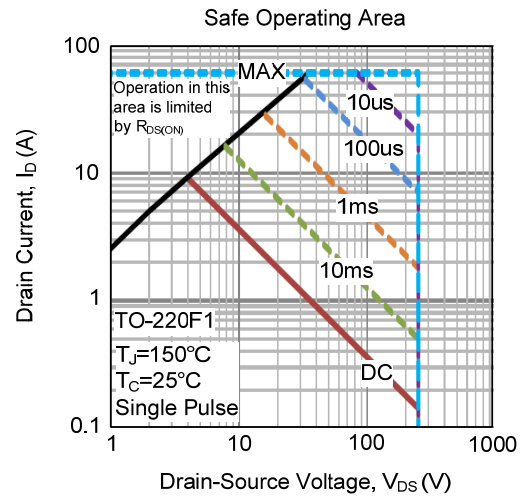
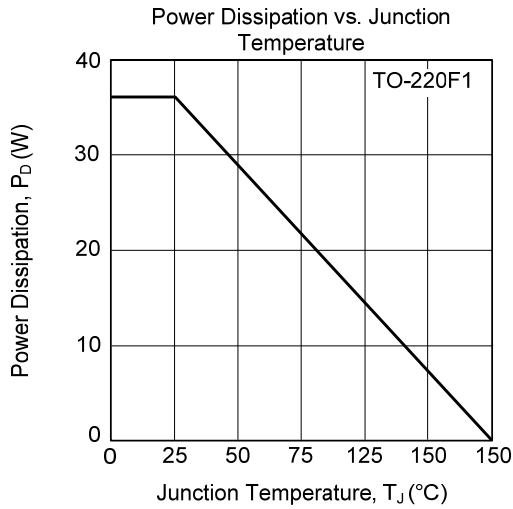
■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220 TO-220F TO-220F1	θ_{JA}	62.5	$^{\circ}\text{C}/\text{W}$
	TO-252			
Junction to Case	TO-220	θ_{JC}	1.2	$^{\circ}\text{C}/\text{W}$
	TO-220F		3.4	$^{\circ}\text{C}/\text{W}$
	TO-220F1			
	TO-252		1.47	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	250			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=250V, V_{GS}=0V$			10	μA
Gate-Source Leakage Current	Forward	$V_{GS}=+30V, V_{DS}=0V$			+100	nA
	Reverse	$V_{GS}=-30V, V_{DS}=0V$			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=7.5A$			0.32	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=25V, f=1.0MHz$		735		pF
Output Capacitance	C_{OSS}			125		pF
Reverse Transfer Capacitance	C_{RSS}			16		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS}=200V, V_{GS}=10V, I_D=15A$ $I_G=1mA$ (Note 1, 2)		20		nC
Gate to Source Charge	Q_{GS}			4.8		nC
Gate to Drain Charge	Q_{GD}			4.8		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=100V, I_D=15A, R_G=25\Omega$ (Note 1, 2)		8		ns
Rise Time	t_R			19		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			47		ns
Fall-Time	t_F			21		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}	$I_S=15A, V_{GS}=0V$			1.5	V
Body Diode Reverse Recovery Time	t_{rr}	$I_S=15A, V_{GS}=0V, dI_F/dt=100A/\mu s$		190		ns
Reverse Recovery Charge	Q_{rr}	(Note 1)		1.3		μC

TYPICAL CHARACTERISTICS



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