

40N15

Power MOSFET

40A, 150V N-CHANNEL POWER MOSFET

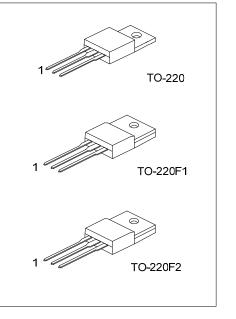
DESCRIPTION

The UTC **40N15** is an N-channel enhancement MOSFET, it uses UTC's advanced technology to provide the customers with perfect $R_{\text{DS}(\text{ON})}$, high switching speed, high current capacity and low gate charge.

FEATURES

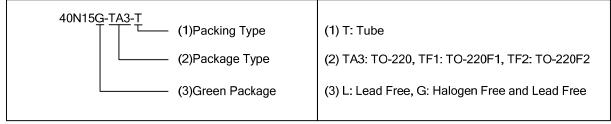
- * $R_{DS(ON)}$ < 50m Ω @ V_{GS} =10V, I_D =20A
- * High Switching Speed
- * High Current Capacity

ORDERING INFORMATION

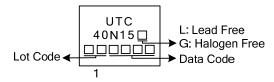


Ordering Number		Daakaga	Pin Assignment			Dooking	
Lead Free	Halogen Free	Package	1	2	3	Packing	
40N15L-TA3-T	40N15G-TA3-T	TO-220	G	D	S	Tube	
40N15L-TF1-T	40N15G-TF1-T	TO-220F1	G	D	S	Tube	
40N15L-TF2-T	40N15G-TF2-T	TO-220F2	G	D	S	Tube	
Noto: Din Assignment: C: Coto D: Drain S: Source							

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



ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	150	V
Gate-Source Voltage		V _{GSS} ±25		V
	Continuous	I _D	40	А
Drain Current	Pulsed	I _{DM}	180 A 45.6 A 650 mJ 21 mJ	А
Avalanche Current		I _{AR}	45.6	А
	Single Pulsed	E _{AS}	650	mJ
Avalanche Energy	Repetitive	E _{AR}	21	mJ
Peak Diode Recovery dv/dt		dv/dt	7	V/ns
Dower Dissinction	TO-220	D	166	W
Power Dissipation		210	W	
Junction Temperature		ТJ	-50 ~ +150	°C
Storage Temperature Range		T _{STG}	-50 ~ +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		θ _{JA}	62.5	°C/W
lunation to Case	TO-220	0	0.9	°C/W
Junction to Case	TO-220F1/ TO-220F2	θις	0.7	°C/W

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS			1	-			
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} =0V, I _D =250µA	150			V
Prain-Source Leakage Current		I _{DSS}	V _{GS} =0V, V _{DS} =150V			900	nA
Gate-Source Leakage Current	Forward	- I _{GSS}	V_{GS} =+20V, V_{DS} =0V			+100	nA
	Reverse	IGSS	V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	$V_{DS}=V_{GS}$, $I_{D}=250\mu A$	2.2		3.8	V
Static Drain-Source On-State Res	sistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A			50	mΩ
DYNAMIC PARAMETERS							
Input Capacitance	Input Capacitance				2500		pF
Output Capacitance		C _{OSS}	−V _{DS} =25V, V _{GS} =0V, −f=1.0MHz		520		pF
Reverse Transfer Capacitance		C _{RSS}	1-1.000112		100		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_{G}			85		nC
Gate to Source Charge		Q_{GS}	V _{GS} =10V, V _{DD} =50V,		15		nC
Gate to Drain Charge		Q_{GD}	I _D =1.3A, I _G =100μA 41			nC	
Turn-ON Delay Time		t _{D(ON)}			35		ns
Rise Time			V _{GS} =0~10V, V _{DD} =30V,		320		ns
Turn-OFF Delay Time		t _{D(OFF)}	I _D =0.5A, R _G =25Ω		210		ns
Fall-Time		t⊨			200		ns
SOURCE- DRAIN DIODE RATIN	IGS AND CI	HARACTERIS	TICS				
Maximum Body-Diode Continuous Current		ls				40	А
Maximum Body-Diode Pulsed Cu	rrent	I _{SM}				160	А
Drain-Source Diode Forward Volt	Drain-Source Diode Forward Voltage		I _S =40A, V _{GS} =0V			1.48	V
Body Diode Reverse Recovery T	Body Diode Reverse Recovery Time		V _{GS} =0V, I _S =30A 150		150		ns
Body Diode Reverse Recovery Charge		Q_RR	dI _F /d _t =100A/µs		0.9		μC



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