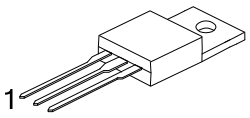
65 Amps, 30 Volts, 3.7mΩ N-CHANNEL POWER MOSFET



TO-220

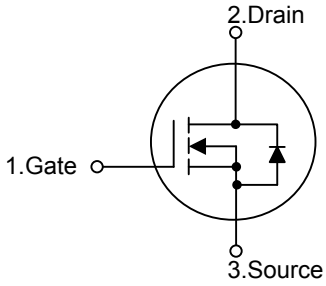
■ DESCRIPTION

The UTC **UT65N03** is a N-channel Trench technology using UTC's advanced Trench technology to provide customers with a minimum on-state resistance, low gate charge and superior switching performance.

■ FEATURES

* V_{DS}= 30V, I_D=65A,
* $R_{DS(ON)}$=65mΩ @ V_{GS}=10V
  $R_{DS(ON)}$=97mΩ @ V_{GS}=4.5V
* Low Gate Charge (Typ. 25nC)
* High Switching Speed
* High Power and Current Handling Capability
* RoHS Compliant

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT65N03L-TA3-T	UT65N03G-TA3-T	TO-220	G	D	S	Tube

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

UT65N03L-TA3-T

(1)Packing Type — (1) T: Tube

(2)Package Type — (2) TA3: TO-220

(3)Lead Free — (3) G: Halogen Free, L: Lead Free

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■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	65	A
	Pulsed	I_{DM}	130	A
Single Pulsed Avalanche Energy		E_{AS}	71.7	mJ
Power Dissipation		P_D	54	W
			0.43	W/°C
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55~+175	°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
Junction to Case	θ_{JC}	2.3	°C/W

■ ELECTRICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS (Note 2)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1.3	1.7	3	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=30A		6.5	8.4	mΩ
			V_{GS}=4.5V, I_D=30A		9.7	14.6	
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, f=1MHz, V_{DS}=20V		1177	1400	pF
Output Capacitance		C_{OSS}			555		pF
Reverse Transfer Capacitance		C_{RSS}			218		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=5V, V_{DS}=10V, I_D=30A		12.2	16	nC
Gate to Source Charge		Q_{GS}			2.95		nC
Gate to Drain Charge		Q_{GD}			6.08		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=10V, V_{DS}=25V, I_D=30A, RG=3Ω		6.3		ns
Rise Time		t_R			18.6		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			20.3		ns
Fall-Time		t_F			8.8		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V_{SD}	I_S=20A, V_{GS}=10V		0.85	1.1	V
Maximum Body-Diode Continuous Current		I_S				65	A
Maximum Body-Diode Pulsed Current		I_{SM}				130	A

Note: 1. Pulse Test: Pulse Width ≤ 300 _s, Duty Cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperatures.
3. L=1.0mH, I_{AS}=12A, V_{DD}=24V, R_G=25Ω, Satarting T_J=25°C.

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