



UT85N03

Power MOSFET

85 Amps, 30 Volts N-CHANNEL POWER MOSFET

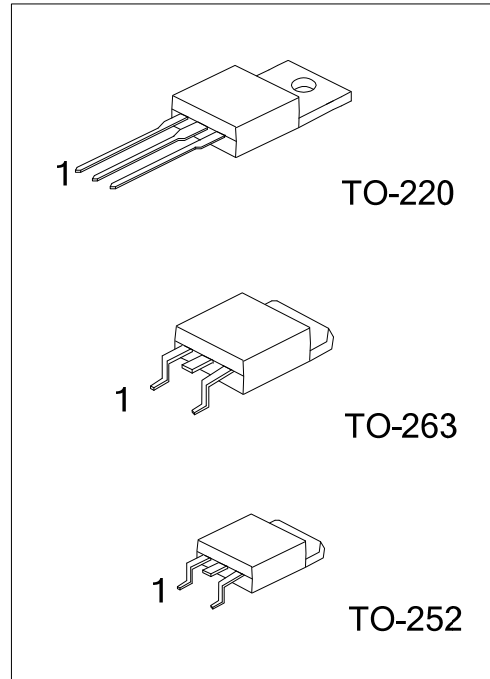
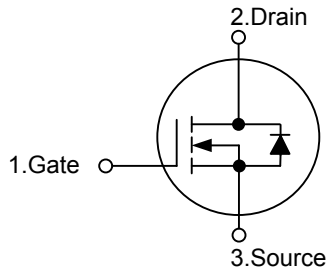
■ DESCRIPTION

The **UT85N03** uses advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suited for all low voltage applications.

■ FEATURES

- * $R_{DS(ON)} < 6 \text{ m}\Omega @ V_{GS} = 10\text{V}$
- * $R_{DS(ON)} < 10 \text{ m}\Omega @ V_{GS} = 4.5\text{V}$
- * Low Reverse Transfer Capacitance ($C_{RSS} = \text{Typical: } 380 \text{ pF}$)
- * Fast Switching Capability
- * Avalanche Energy Specified
- * Improved dv/dt Capability, High Ruggedness

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT85N03L-TA3-T	UT85N03G-TA3-T	TO-220	G	D	S	Tube
UT85N03L-TN3-T	UT85N03G-TN3-T	TO-252	G	D	S	Tube
UT85N03L-TN3-R	UT85N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT85N03L-TQ2-T	UT85N03G-TQ2-T	TO-263	G	D	S	Tube
UT85N03L-TQ2-R	UT85N03G-TQ2-R	TO-263	G	D	S	Tape Reel

<p>UT85N03L-TN3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TN3: TO-252, TQ2: TO-263</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current		I _D	85	A
Pulsed Drain Current		I _{DM}	350	A
Total Power Dissipation	TO-220/TO-263	P _D	83	W
	TO-252		56	
Junction Temperature		T _J	+75	°C
Strong 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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-263	θ _{JA}	62.5	°C/W
	TO-252		110	
Junction to Case	TO-220/TO-263	θ _{JC}	1.8	°C/W
	TO-252		2.7	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30			V
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} / ΔT _J	I _D =1mA, Reference to 25°C		0.018		V/°C
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =45A			6	mΩ
		V _{GS} =4.5V, I _D =30A			10	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =30A		32		S
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		2700	4200	pF
Output Capacitance	C _{OSS}			550		pF
Reverse Transfer Capacitance	C _{RSS}			380		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note)	Q _G	V _{DS} =24V, V _{GS} =4.5V, I _D =30A		240	300	nC
Gate Source Charge	Q _{GS}			35		nC
Gate Drain Charge	Q _{GD}			78		nC
Turn-ON Delay Time (Note)	t _{D(ON)}	V _{GS} =10V, V _{DS} =15V, R _D =0.5Ω, R _G =3.3Ω, I _D =30A		52		ns
Turn-ON Rise Time	t _R			100		ns
Turn-OFF Delay Time	t _{D(OFF)}			460		ns
Turn-OFF Fall-Time	t _F			280		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =45A, V _{GS} =0V			1.3	V
Body Diode Reverse Recovery Time	t _{RR}	I _S =30A, V _{GS} =0V, di _S /dt=100A/μs		28		ns
Body Diode Reverse Recovery Charge	Q _{RR}			10		nC

Note: Pulse width ≤ 300μs, Duty cycle ≤ 2%

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