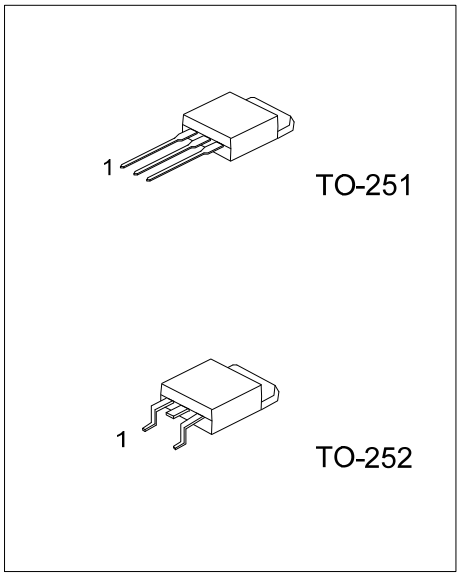
UT70N03

Preliminary ***Power MOSFET***

N-CHANNEL ENHANCEMENT MODE



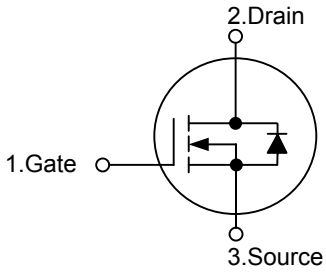
■ DESCRIPTION

UT70N03 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

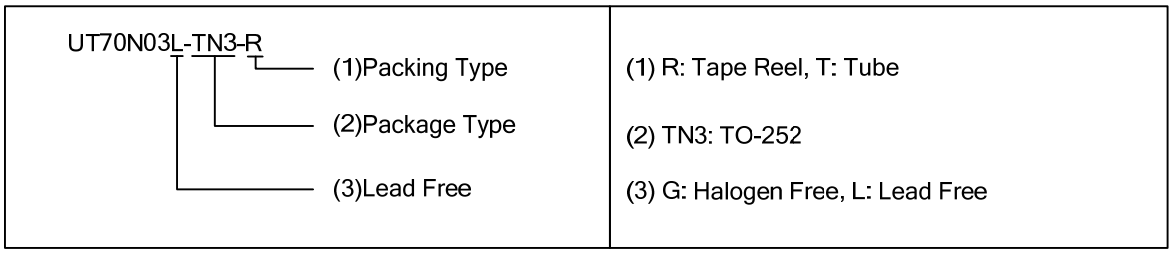
* $R_{DS(ON)}$< 9mΩ @ V_{GS}=10V, I_D=33A
* $R_{DS(ON)}$< 18mΩ @ V_{GS}=4.5V, I_D=20A
* Low capacitance
* Low gate charge
* Fast switching capability
* Avalanche energy specified

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT70N03L-TM3-T	UT70N03G-TM3-T	TO-251	G	D	S	Tube
UT70N03L-TN3-T	UT70N03G-TN3-T	TO-252	G	D	S	Tube
UT70N03L-TN3-R	UT70N03G-TN3-R	TO-252	G	D	S	Tape Reel



■ ABSOLUTE MAXIMUM RATINGS (T_A=25℃, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	60	A
Pulsed Drain Current	I_{DM}	195	A
Power Dissipation	P_D	53	W
Linear Derating Factor		0.36	W/°C
Junction Temperature	T_J	+150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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	℃/W
Junction to Case	θ_{JC}	2.8	℃/W

■ 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
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	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=33A			9	mΩ
		V_{GS}=4.5V, I_D =20A			18	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=33A		35		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz		1485		pF
Output Capacitance	C_{OSS}			245		pF
Reverse Transfer Capacitance	C_{RSS}			170		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{DS}=20V, V_{GS}=4.5V, I_D=33A		16.5		nC
Gate Source Charge	Q_{GS}			5		nC
Gate Drain Charge	Q_{GD}			10.3		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS}=10V, V_{DS}=15V, I_D=33A, R_D=0.45Ω, R_G=3.3Ω		8.2		ns
Turn-ON Rise Time	t_R			105		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			21.4		ns
Turn-OFF Fall-Time	t_F			8.5		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage (Note 2)	V_{SD}	I_S=60A, V_{GS}=0V			1.3	V
Maximum Body-Diode Continuous Current	I_S	V_D=V_G=0V, V_S=1.3V			60	A
Pulsed Source Current (Body Diode)	I_{SM}	(Note 1)			195	A

Note :1. Pulse width limited by safe operating area.
2. Pulse width < 300us, duty cycle < 2%.