

UT30N03

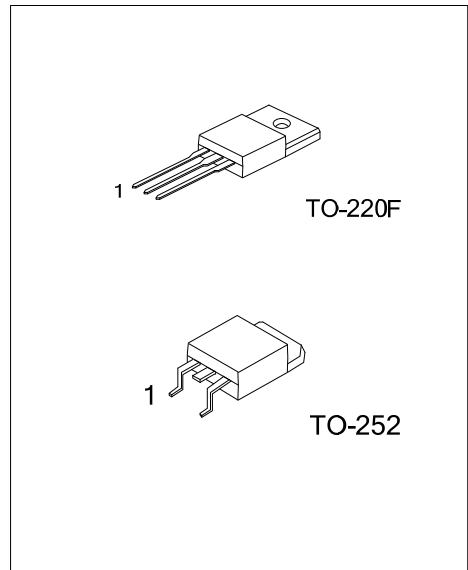
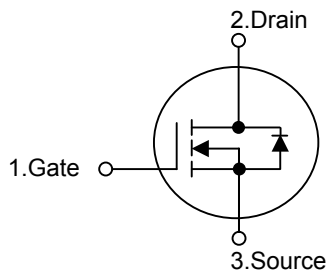
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

■ FEATURES

- * $R_{DS(ON)} = 30m\Omega @ V_{GS} = 10V$
- * Low Capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT30N03L-TF3-T	UT30N03G-TF3-T	TO-220F	G	D	S	Tube
UT30N03L-TN3-R	UT30N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT30N03L-TN3-T	UT30N03G-TN3-T	TO-252	G	D	S	Tube

<p>UT30N03L-TF3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TF3: TO-220F, TN3: TO-252</p> <p>(3) L: Lead Free , G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	30	A
Pulsed Drain Current	I _{DM}	40	A
Avalanche Energy	E _{AS}	90	mJ
Power Dissipation	TO-220F	47	W
	TO-252	42	W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction-to-Ambient	TO-220F	62.5	°C/W
	TO-252	110	°C/W
Junction-to-Case	TO-220F	2.66	°C/W
	TO-252	3.0	°C/W

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

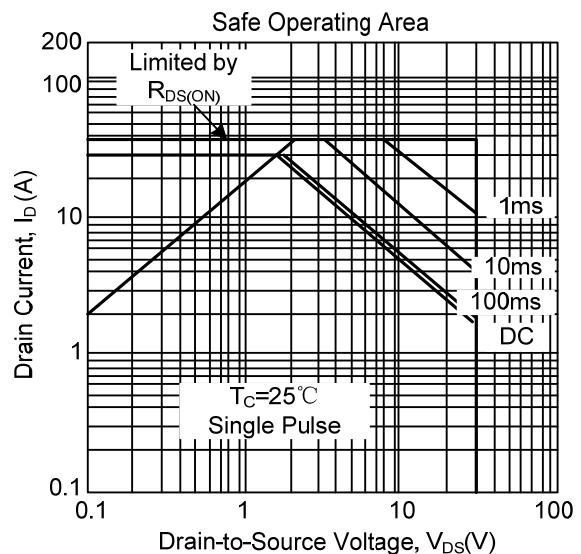
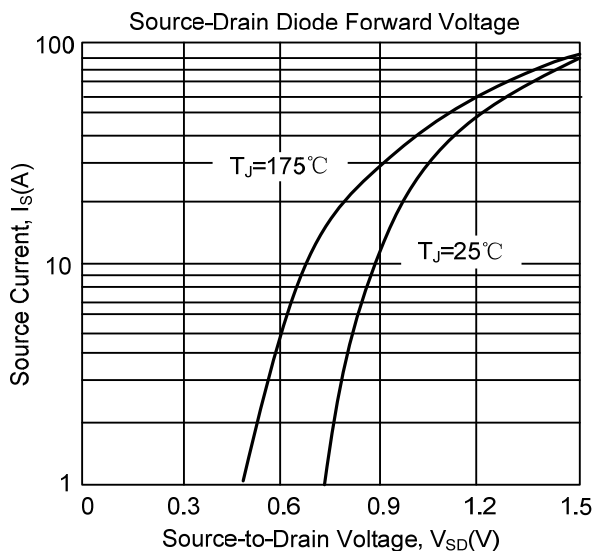
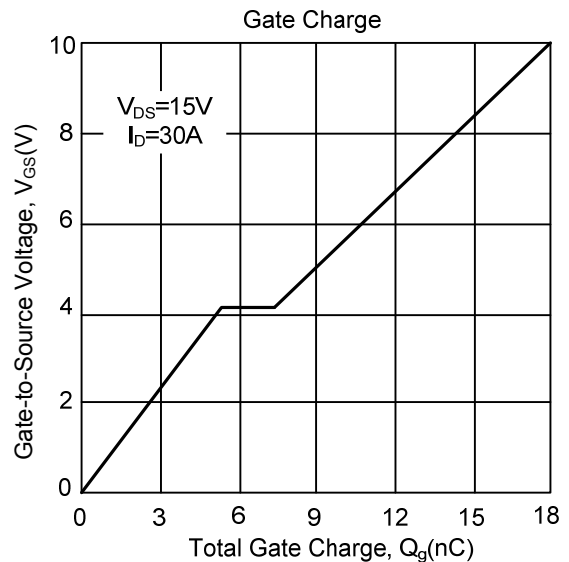
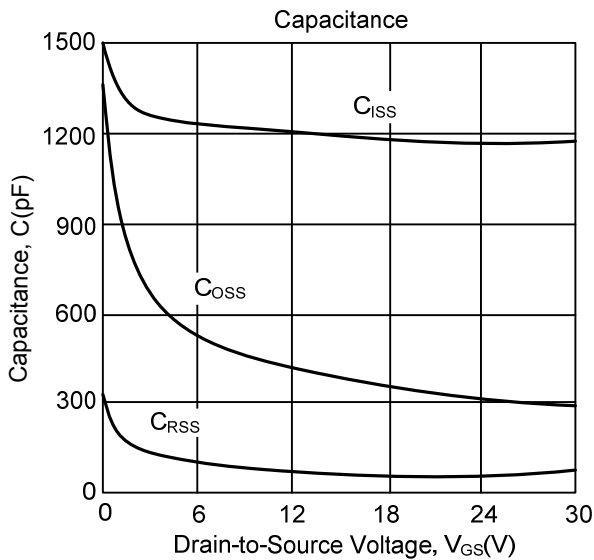
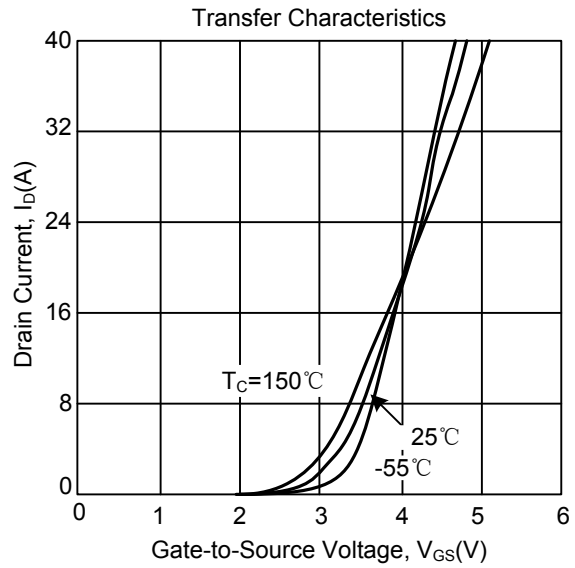
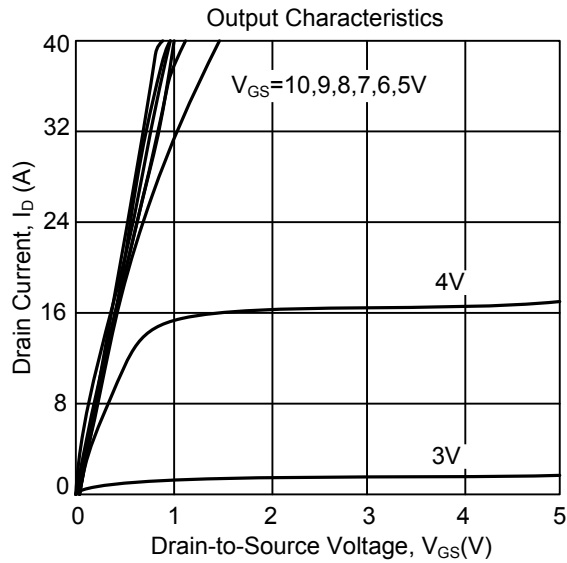
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250 μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0 V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250 μA	1.0			V
Static Drain-Source On-State Resistance (Note2)	R _{DS(ON)}	V _{GS} = 10 V, I _D = 15 A		20	30	mΩ
		V _{GS} = 4.5 V, I _D = 12.5 A		30	45	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1MHz		1170		pF
Output Capacitance	C _{OSS}			320		pF
Reverse Transfer Capacitance	C _{RSS}			60		pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 15V, I _D = 30A, R _L = 0.5Ω, V _{GS} =10V, R _G =7.5Ω (Note 4, 5)		10	20	ns
Turn-On Rise Time	t _R			10	20	ns
Turn-Off Delay Time	t _{D(OFF)}			25	40	ns
Turn-Off Fall Time	t _F			15	30	ns
Total Gate Charge	Q _G	V _{DS} = 15V, I _D = 30A, V _{GS} = 10 V (Note 4, 5)		18	35	nC
Gate-Source Charge	Q _{GS}			5.5		nC
Gate-Drain Charge	Q _{GD}			2		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _F = 30A		1.1	1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				30	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				40	A
Reverse Recovery Time	t _{RR}	I _F =30A, dI _F /dt=100A/μs		50	100	ns

Notes: 1. Guaranteed by design, not subject to production testing.

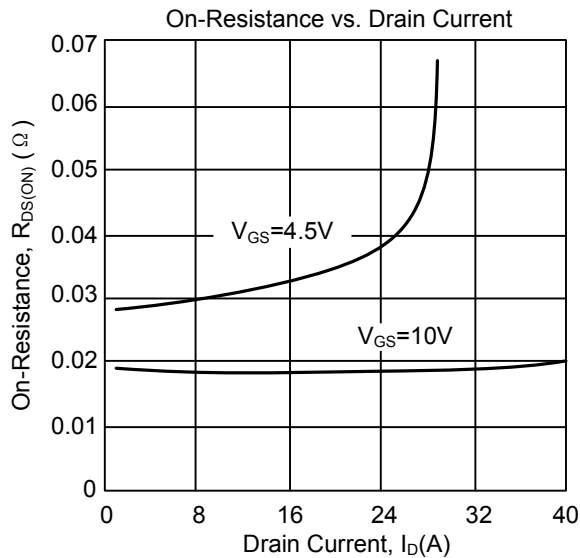
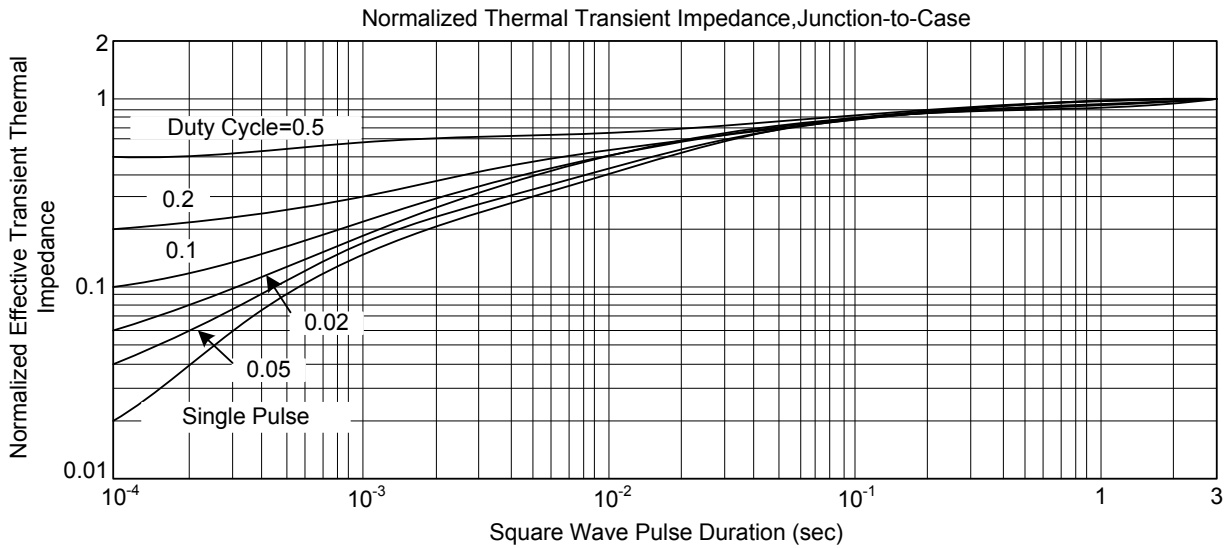
2. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%

3. Essentially independent of operating temperature

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont)



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