

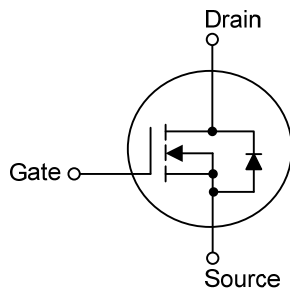
**UT4450****Power MOSFET****7A, 40V N-CHANNEL
POWER MOSFET****DESCRIPTION**

The UTC **UT4450** is an N-channel MOSFET. it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switching speed and low gate charge.

The UTC **UT4450** is suitable for PWM applications or use as a load switch.

FEATURES

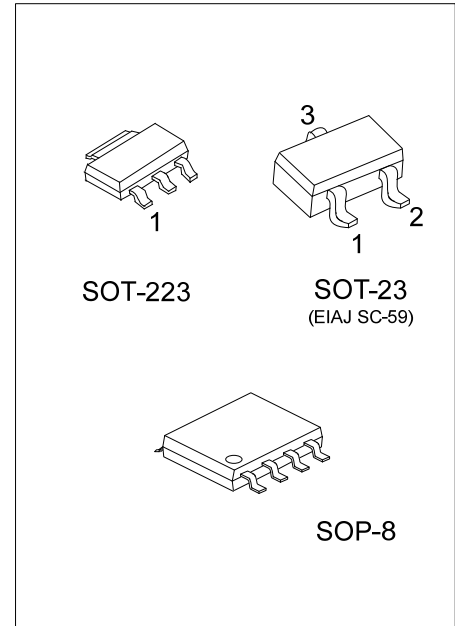
- * $R_{DS(ON)} \leq 30 \text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=7.0\text{A}$
- $R_{DS(ON)} \leq 38 \text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=5.0\text{A}$
- * High switching speed
- * Low gate charge

SYMBOL**ORDERING INFORMATION**

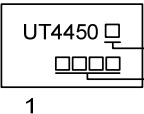
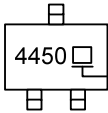
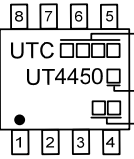
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT4450L-AA3-R	UT4450G-AA3-R	SOT-223	G	D	S	-	-	-	-	-	Tape Reel
UT4450L-AE3-R	UT4450G-AE3-R	SOT-23	G	S	D	-	-	-	-	-	Tape Reel
UT4450L-S08-R	UT4450G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

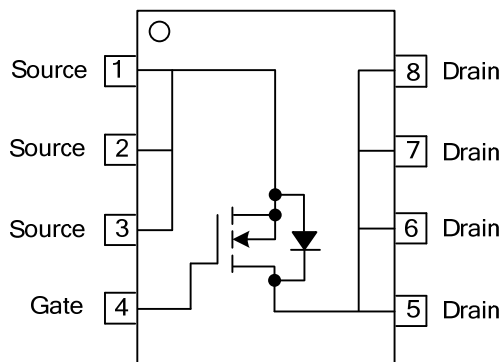
UT4450G-AA3-R 		(1) R: Tape Reel (2) AA3: SOT-23, AE3: SOT-23, S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

PACKAGE	MARKING
SOT-223	 UT4450 □ □ □ □ □ 1 L: Lead Free G: Halogen Free Date Code
SOT-23	 4450 □ L: Lead Free G: Halogen Free
SOP-8	 8 7 6 5 UTC □ □ □ □ UT4450 □ □ □ 1 2 3 4 Date Code L: Lead Free G: Halogen Free Lot Code

PIN CONFIGURATION



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

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	40	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	T _A =25°C	I _D	7	A
	Pulsed (Note 2)		I _{DM}	28	A
Avalanche Current (Note 2)			I _{AS}	14	A
Avalanche Energy	L=0.1mH (Note 2)		E _{AS}	10	mJ
Power Dissipation (T _A =25°C) (Note 3)	SOT-223		P _D	2	W
	SOT-23			1	W
	SOP-8			3.1	W
Junction Temperature			T _J	+150	°C
Storage Temperature Range			T _{STG}	-55 ~ +150	°C

Notes: 1. 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.

2. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.

3. Based on T_{J(MAX)}=150°C, using ≤10s.

■ THERMAL DATA

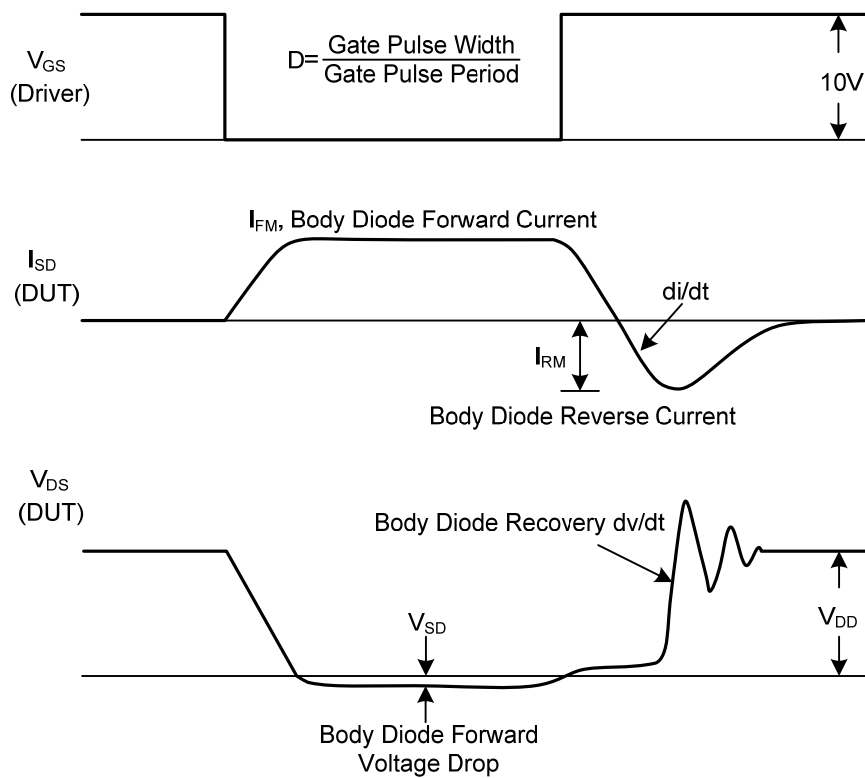
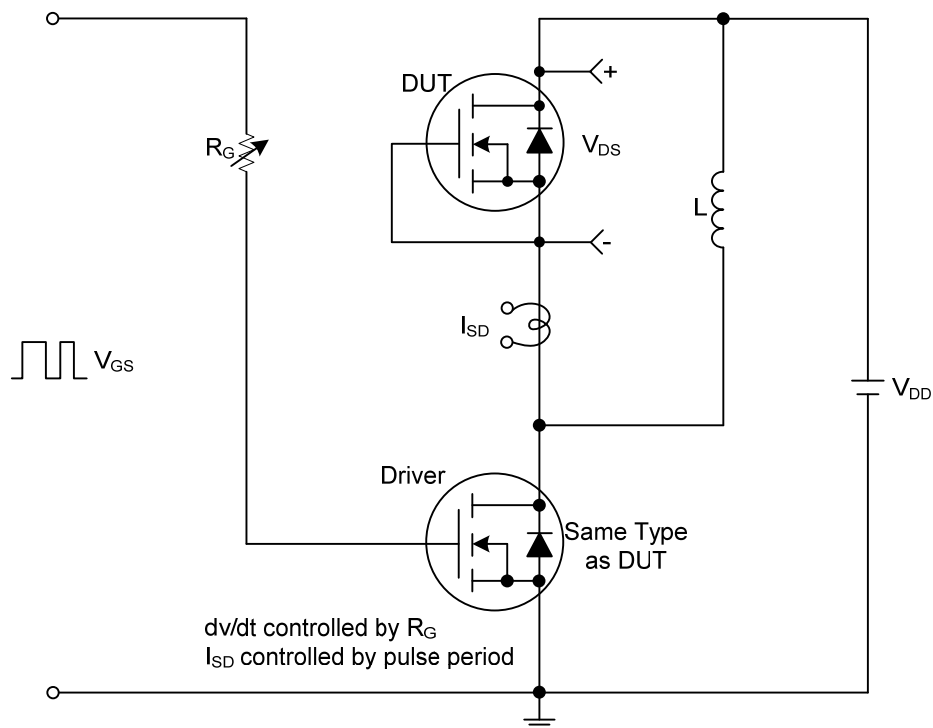
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ _{JA}	180	°C/W
	SOT-23		325	°C/W
	SOP-8		90 (Note)	°C/W
Junction to Case	SOT-223	θ _{JC}	62.5	°C/W
	SOT-23		125	°C/W
	SOP-8		40.3 (Note)	°C/W

Note: The value of θ_{JA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The value in any given application depends on the user's specific board design.

■ **ELECTRICAL CHARACTERISTICS** ($T_J = 25^\circ\text{C}$, unless otherwise specified)

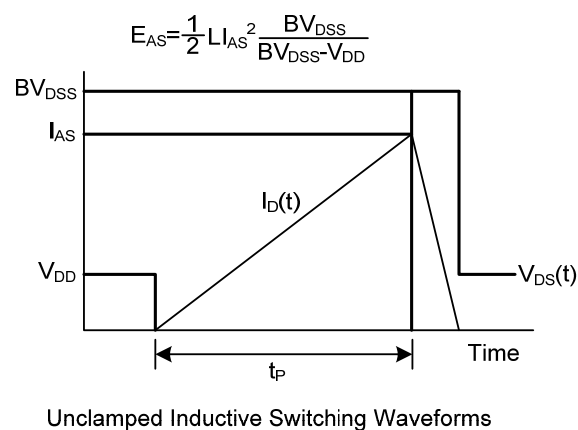
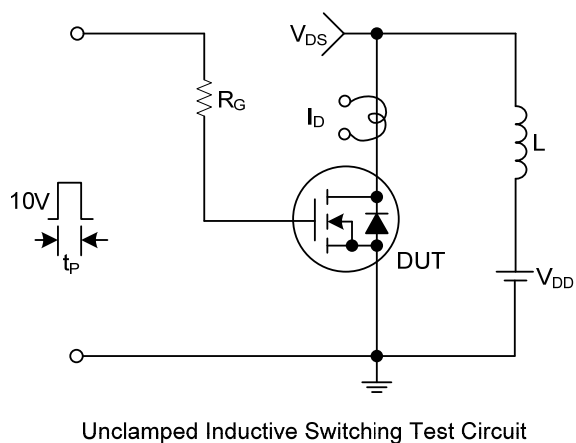
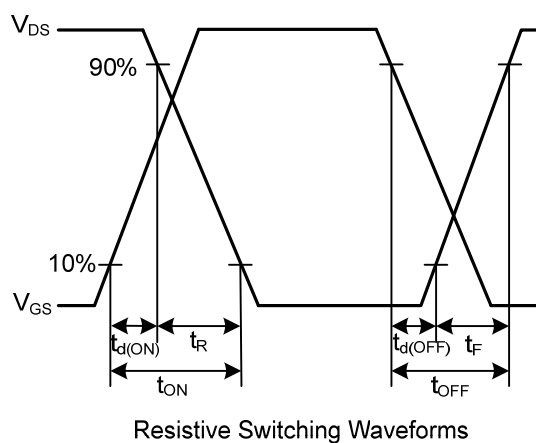
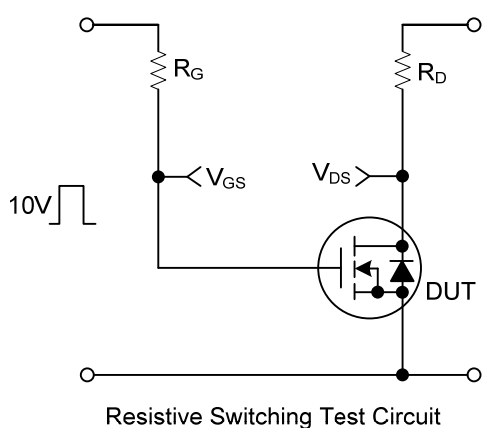
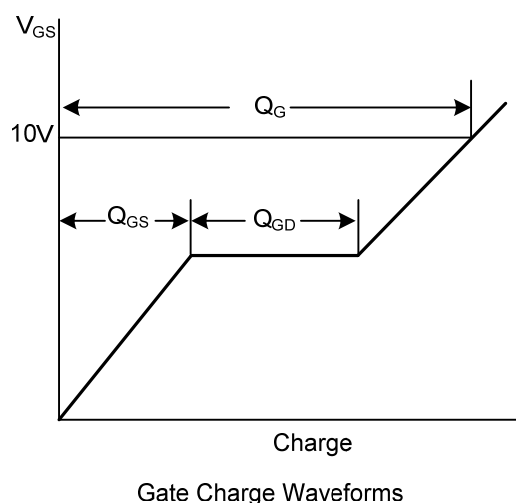
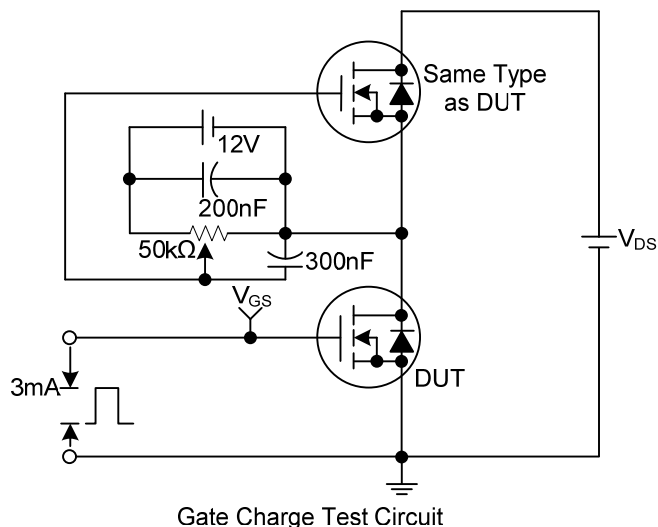
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	40			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =7.0A			30	mΩ
			V _{GS} =4.5V, I _D =5.0A			38	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =20V, f=1.0MHz		516		pF
Output Capacitance		C _{OSS}			82		pF
Reverse Transfer Capacitance		C _{RSS}			43		pF
SWITCHING PARAMETERS (Note 2)							
Total Gate Charge		Q _G	V _{GS} =10V, V _{DS} =20V, I _D =7.0A		8.9		nC
Gate to Source Charge		Q _{GS}			2.4		nC
Gate to Drain Charge		Q _{GD}			1.4		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DS} =20V, V _{GS} =10V, R _{GEN} =3Ω, R _L =2.8Ω		6.4		ns
Rise Time		t _R			3.6		ns
Turn-OFF Delay Time		t _{D(OFF)}			16.2		ns
Fall-Time		t _F			6.6		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S				3.5	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =1.0A, V _{GS} =0V			1	V
Body Diode Reverse Recovery Time		t _{rr}	I _F =7.0A, dI/dt=100A/μs		18		ns
Body Diode Reverse Recovery Charge		Q _{rr}			10		nC

■ TEST CIRCUITS AND WAVEFORMS

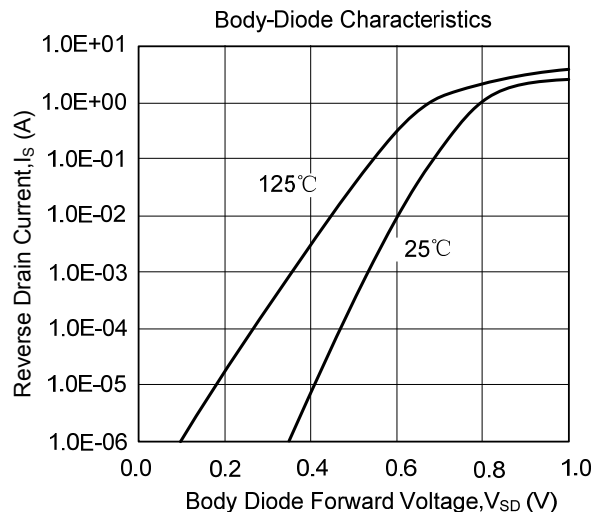
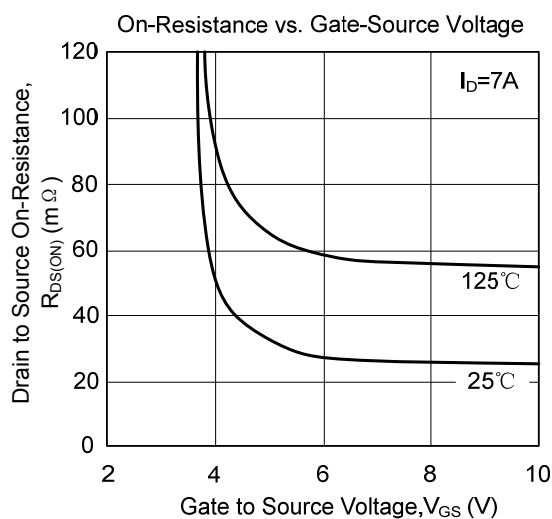
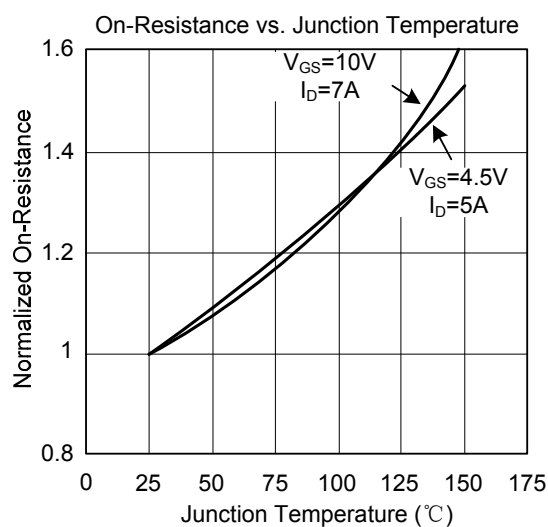
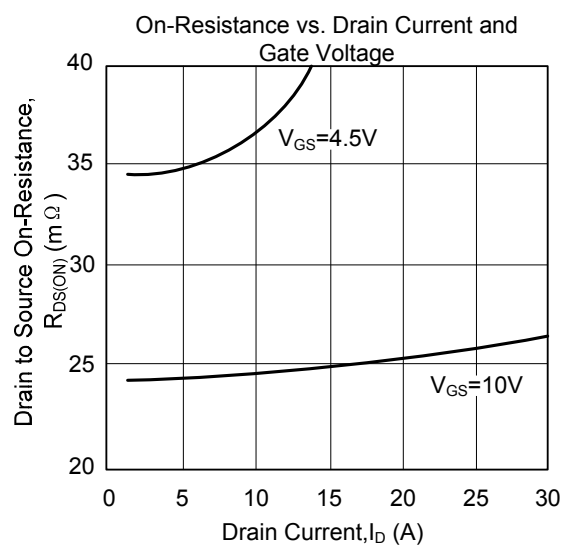
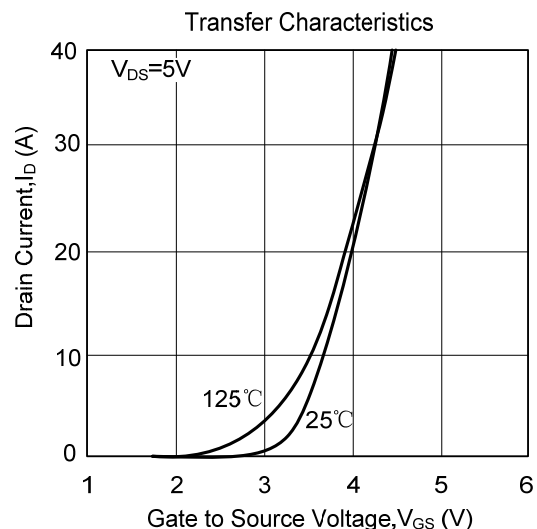
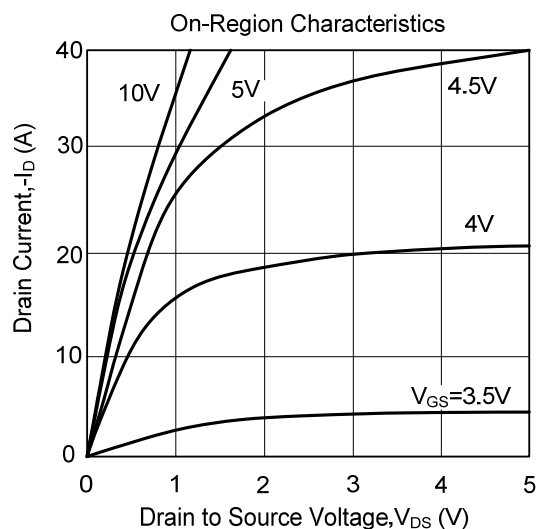


Peak Diode Recovery dv/dt Test Circuit and Waveforms

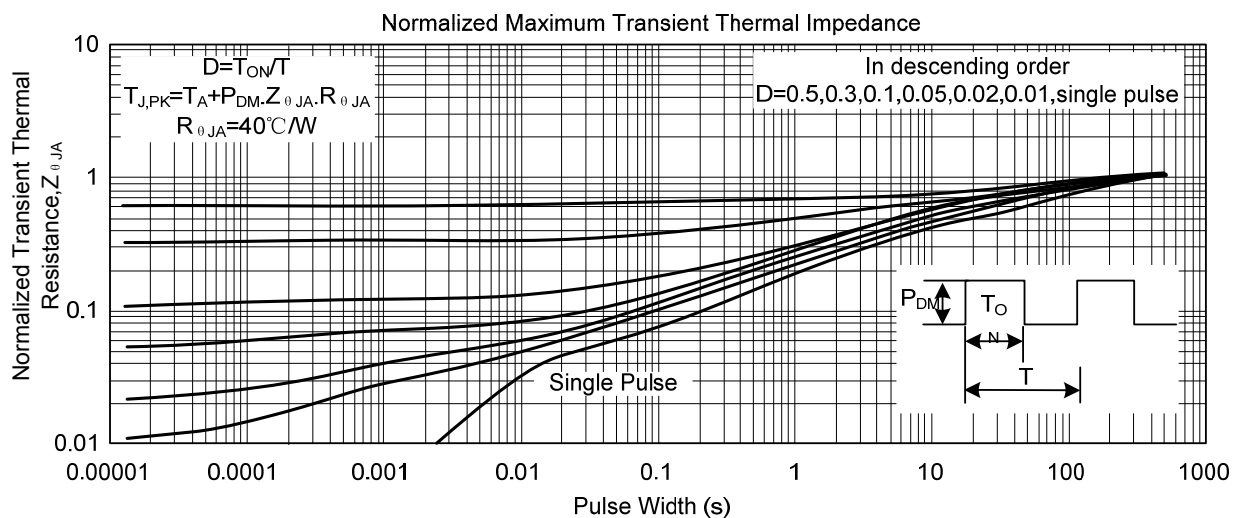
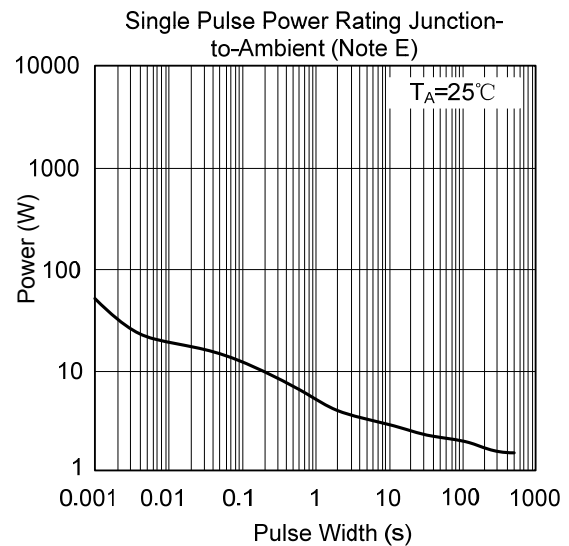
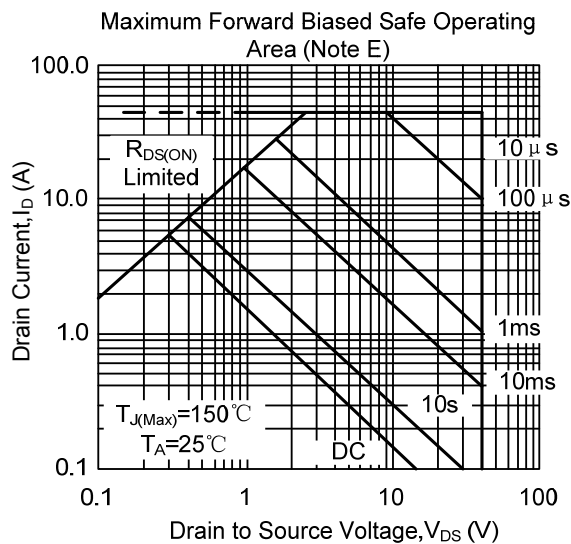
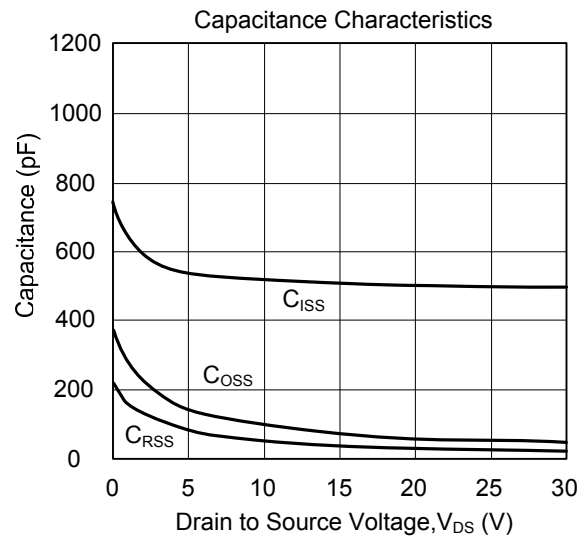
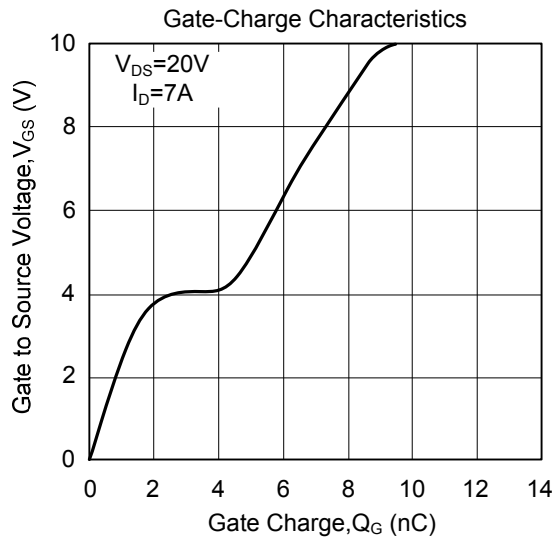
■ TEST CIRCUITS AND WAVEFORMS



TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



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