

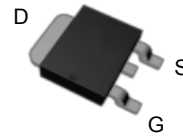
Features

- 30V/60A,
 $R_{DS(ON)} = 6.5\text{m}\Omega$ (typ.) @ $V_{GS} = 10\text{V}$
 $R_{DS(ON)} = 10\text{m}\Omega$ (typ.) @ $V_{GS} = 4.5\text{V}$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)

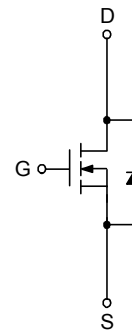
Applications

- Power Management in Desktop Computer or DC/DC Converters.

Pin Description



Top View of TO-252-2



N-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current		60	A
I _D	Continuous Drain Current	T _C =25°C	60	A
		T _C =100°C	45	
I _{DM} ^a	Pulse Drain Current	T _C =25°C	180	A
P _D	Maximum Power Dissipation	T _C =25°C	50	W
		T _C =100°C	20	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	2.5	°C/W
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	t ≤ 10s	20	°C/W
		Steady State	45	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	14	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	50	mJ

Note a : Pulse width is limited by max. junction temperature.

Note b : Surface mounted on 1in^2 pad area, steady state $t = 999\text{s}$.

Note c : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature $T_J=25^{\circ}\text{C}$).

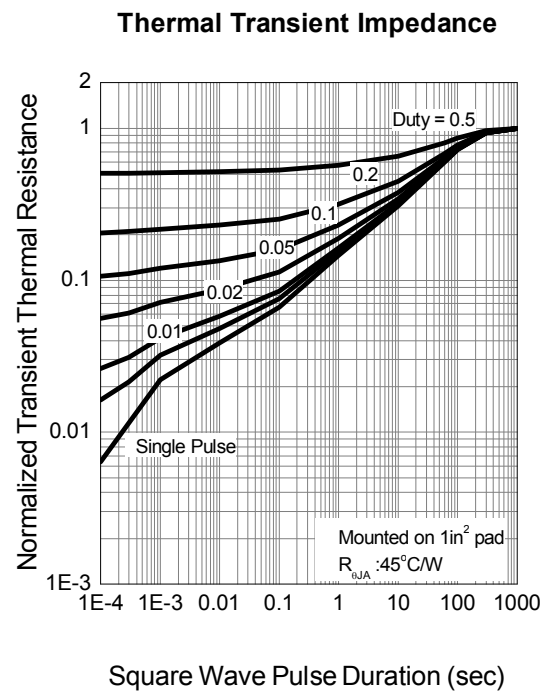
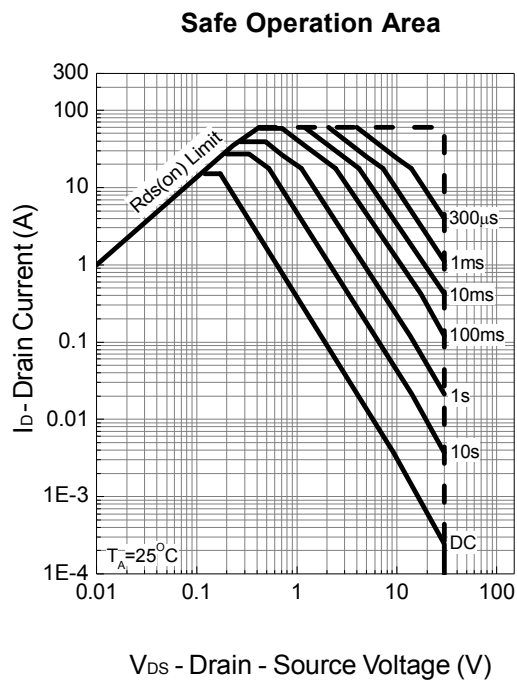
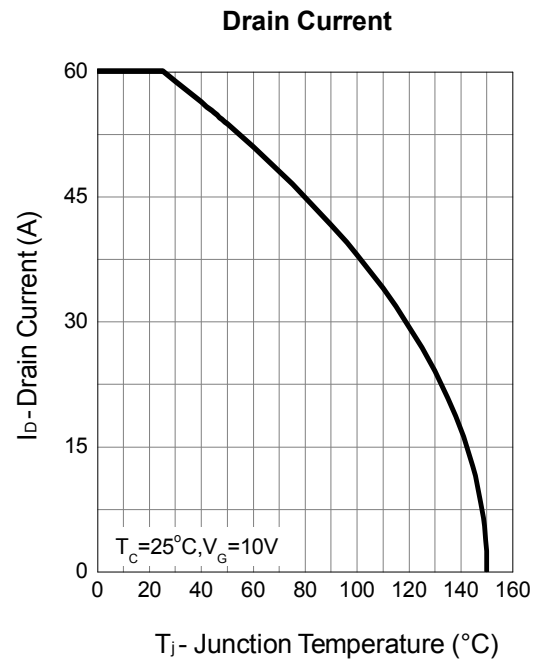
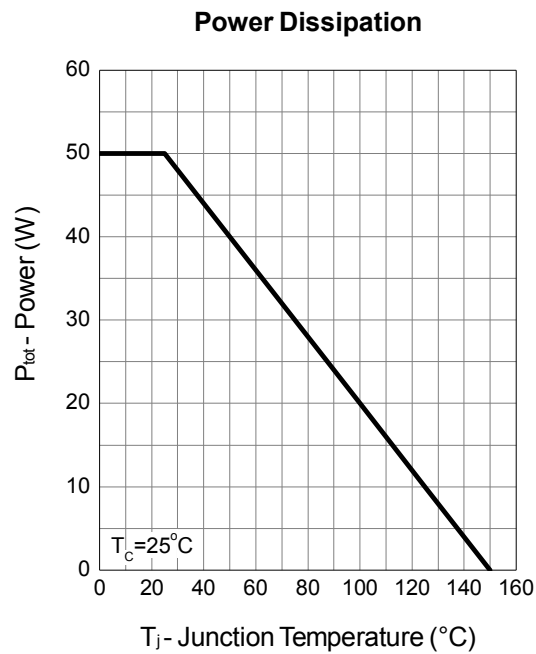
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V T _J =85°C	- -	- -	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.0	1.8	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	10	μA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =30A T _J =125°C	- -	6.5 9.9	9 -	mΩ
		V _{GS} =4.5V, I _{DS} =15A	-	10	14	
Gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =30A	-	70	-	S
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =15A, V _{GS} =0V	-	0.85	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =15A, dI _{SD} /dt=100A/μs	-	15	-	ns
t _a	Charge Time		-	8	-	
t _b	Discharge Time		-	7	-	
Q _{rr}	Reverse Recovery Charge		-	8	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	0.7	1.2	1.7	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	980	1180	1400	pF
C _{oss}	Output Capacitance		158	190	228	
C _{rss}	Reverse Transfer Capacitance		90	115	140	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	14	20	ns
t _r	Turn-on Rise Time		-	12	18	
t _{d(OFF)}	Turn-off Delay Time		-	30	45	
t _f	Turn-off Fall Time		-	10	15	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =30A	-	8	11	nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =30A	-	20	24	
Q _{gth}	Threshold Gate Charge		-	1.4	1.7	
Q _{gs}	Gate-Source Charge		-	2.3	2.8	
Q _{gd}	Gate-Drain Charge		-	4.5	5	

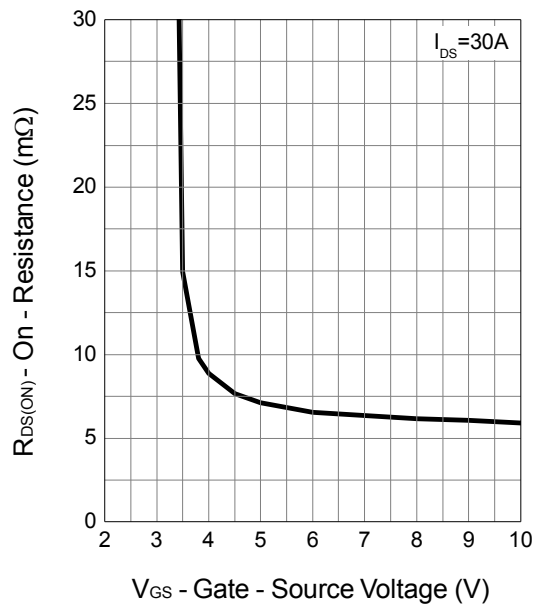
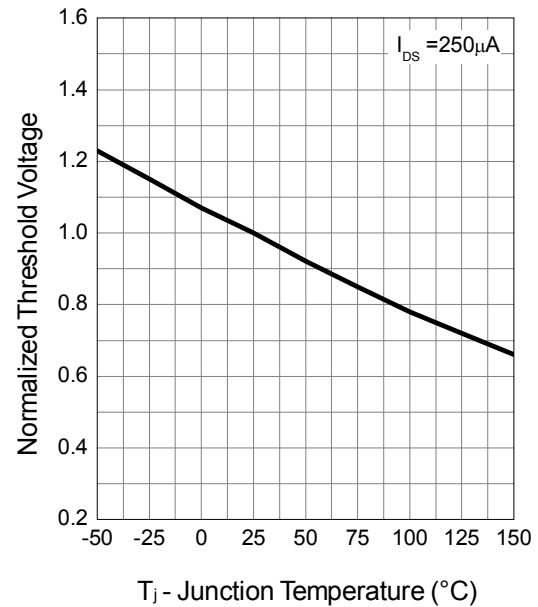
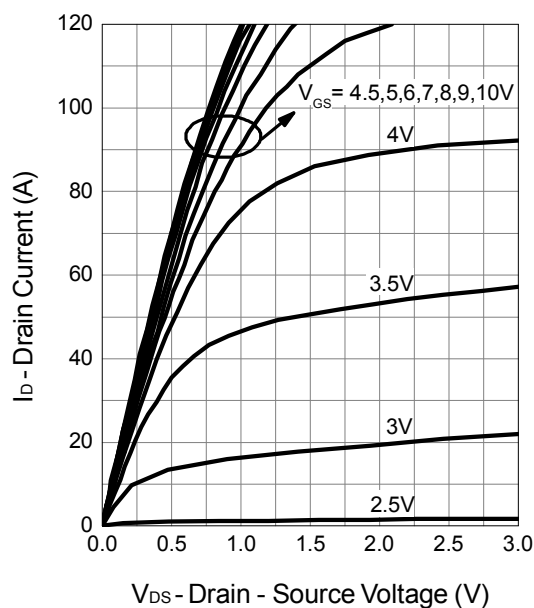
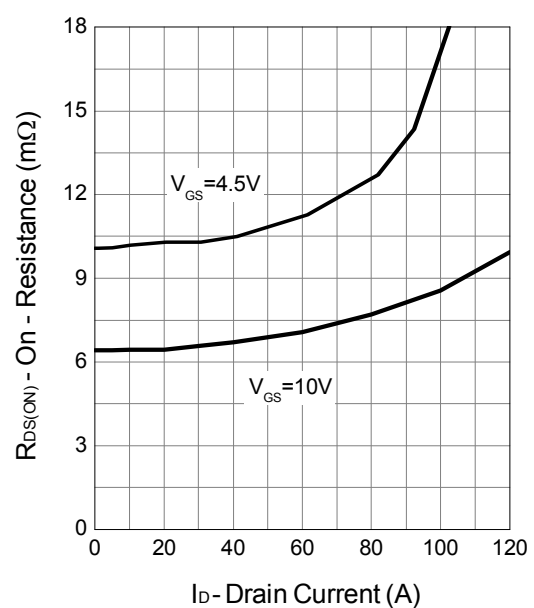
Note d : Pulse test ; pulse width≤300μs, duty cycle≤2%.

Note e : Guaranteed by design, not subject to production testing.

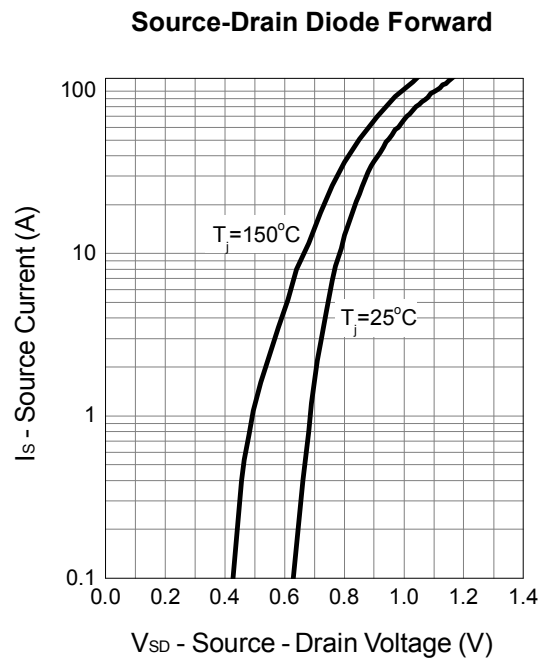
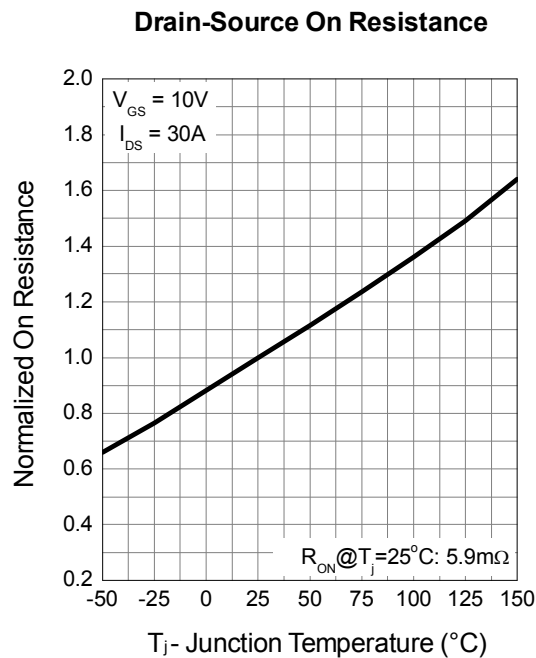
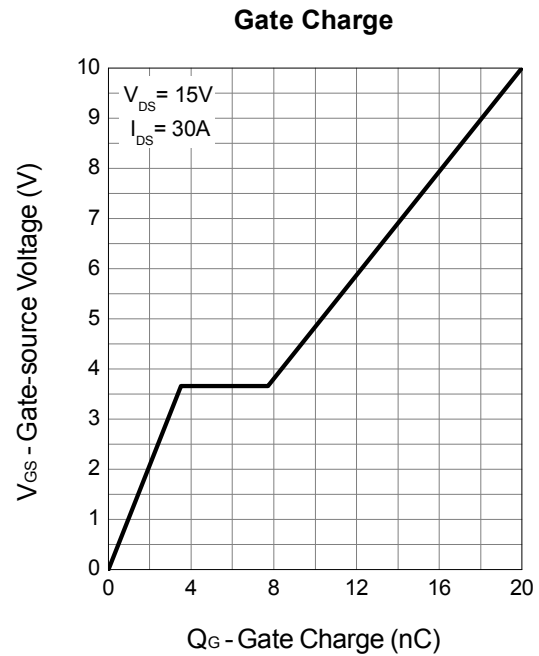
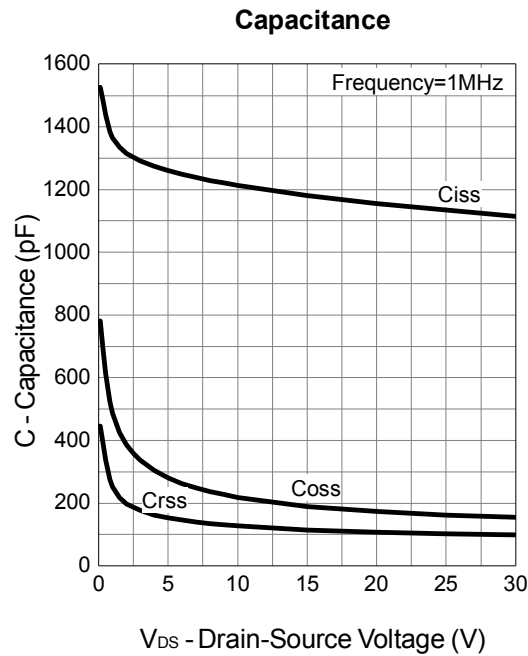
Typical Operating Characteristics



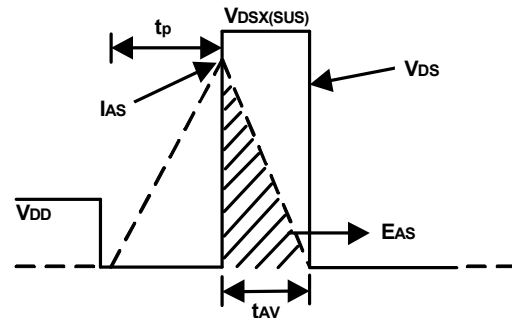
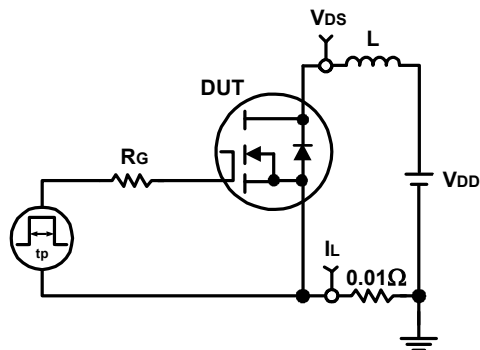
Typical Operating Characteristics (Cont.)

Gate-Source On Resistance

Gate Threshold Voltage

Output Characteristics

Drain-Source On Resistance


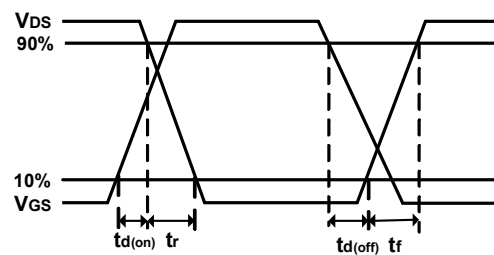
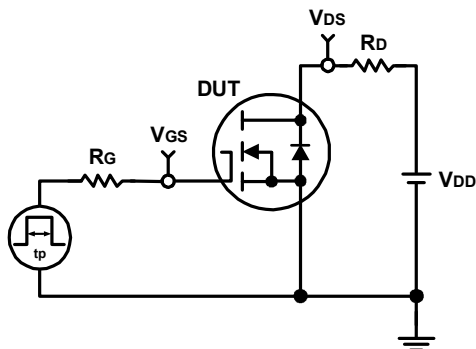
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Information

