

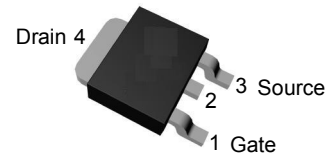
Features

- -150V/-25A,
 $R_{DS(ON)} = 120m\Omega$ (typ.) @ $V_{GS} = -10V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)

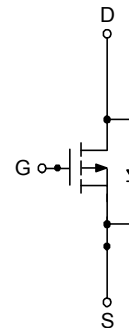
Applications

- Power Management for Industrial DC / DC Converters.
- Load switch.

Pin Description



Top View of TO-252-2



P-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-150	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _A =25°C	-18	A
I _D	Continuous Drain Current	T _A =25°C	-25	A
		T _A =70°C	-23	
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	-6.8	
P _D	Maximum Power Dissipation	T _A =25°C	1.78	W
		T _A =70°C	1.14	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient		70	°C/W
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	14	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	49	mJ

Note a : Pulse width limited by maximum junction temperature.

Note b : Surface mounted on 1in² pad area.

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

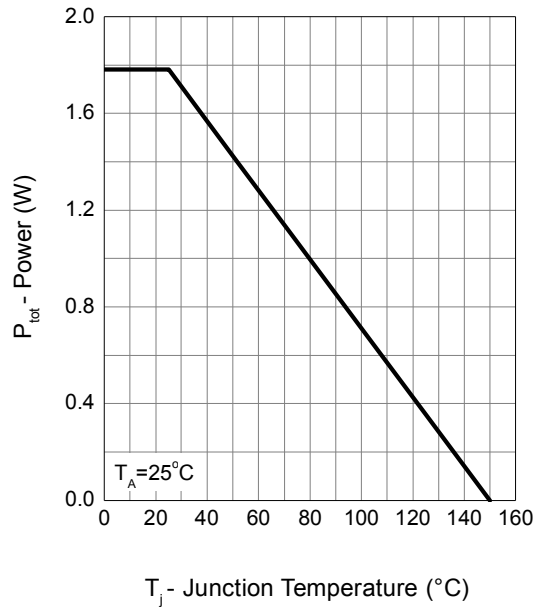
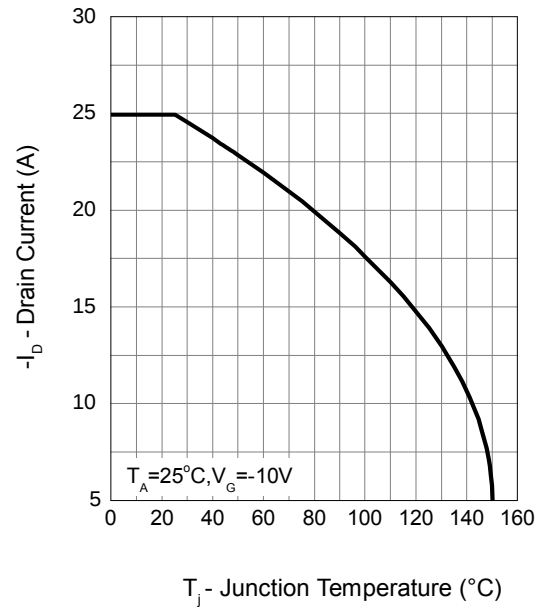
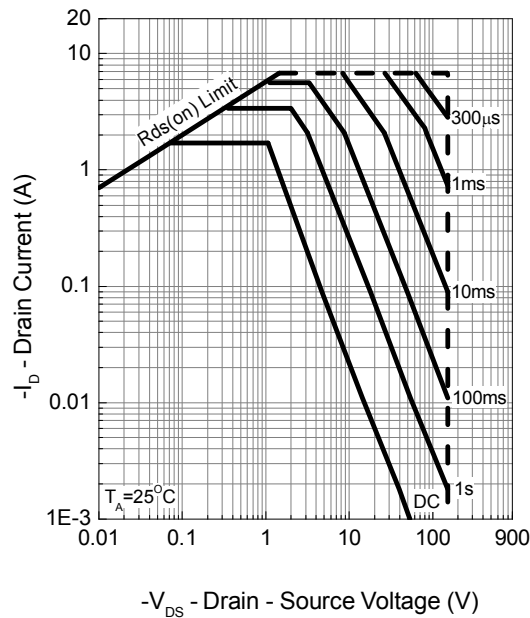
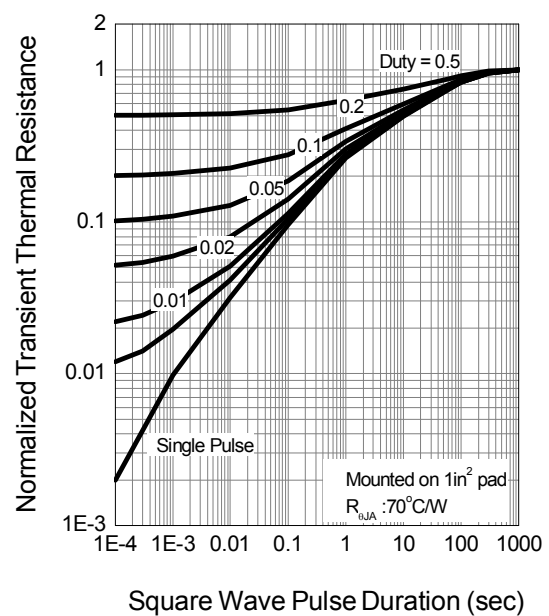
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-150	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-120V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.5	-1.9	-3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-1.6A	-	120	135	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.75	-1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =-1.6A,	-	40	-	ns
Q _{rr}	Reverse Recovery Charge	dI _{SD} /dt=100A/μs	-	83	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	13	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-30V, Frequency=1.0MHz	-	910	1200	pF
C _{oss}	Output Capacitance		-	82	-	
C _{rss}	Reverse Transfer Capacitance		-	37	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-30V, R _L =30Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	11	20	ns
t _r	Turn-on Rise Time		-	9	17	
t _{d(OFF)}	Turn-off Delay Time		-	51	92	
t _f	Turn-off Fall Time		-	25	45	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =-75V, V _{GS} =-10V, I _{DS} =-1.6A	-	20	28	nC
Q _{gs}	Gate-Source Charge		-	4.3	-	
Q _{gd}	Gate-Drain Charge		-	5.3	-	

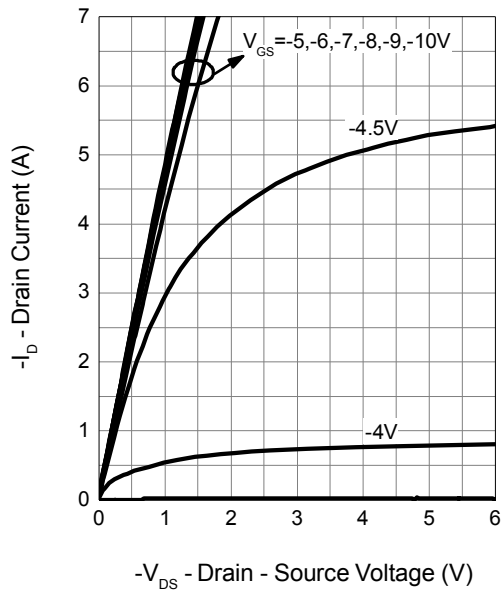
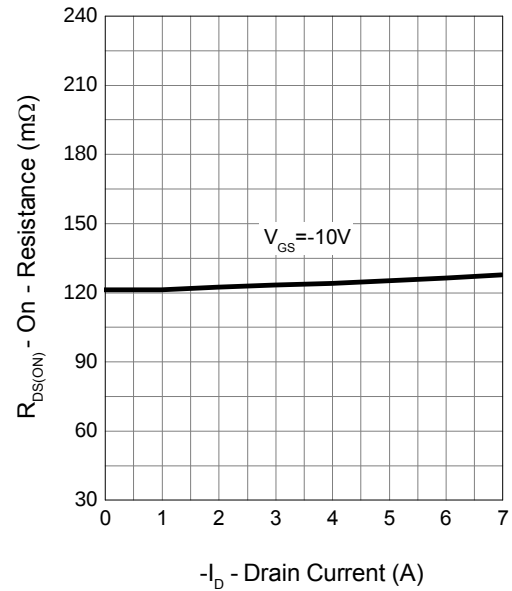
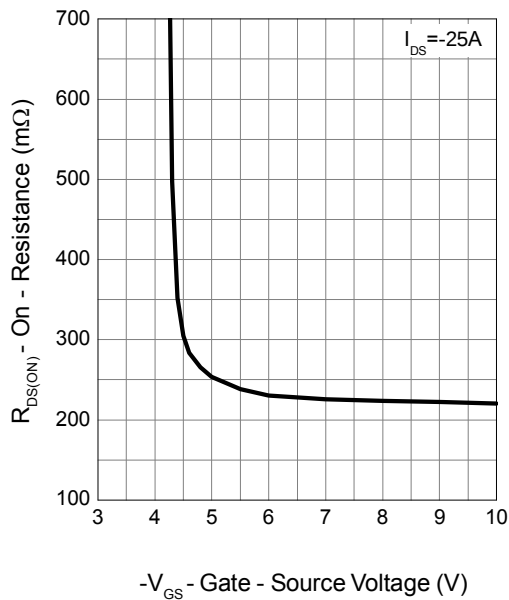
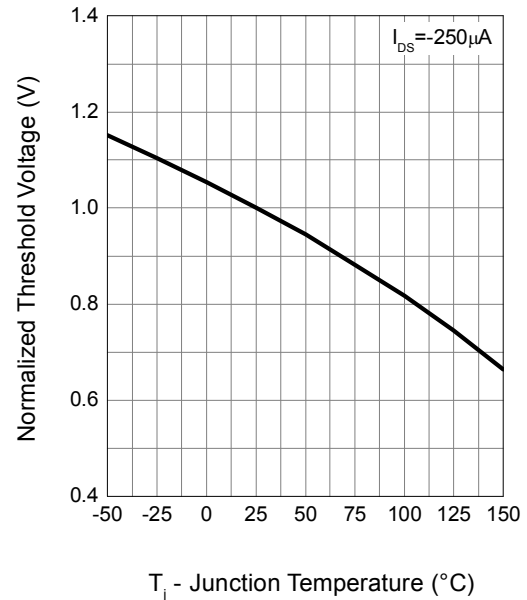
Note d : Pulse test; pulse width≤300μs, duty cycle≤2%.

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

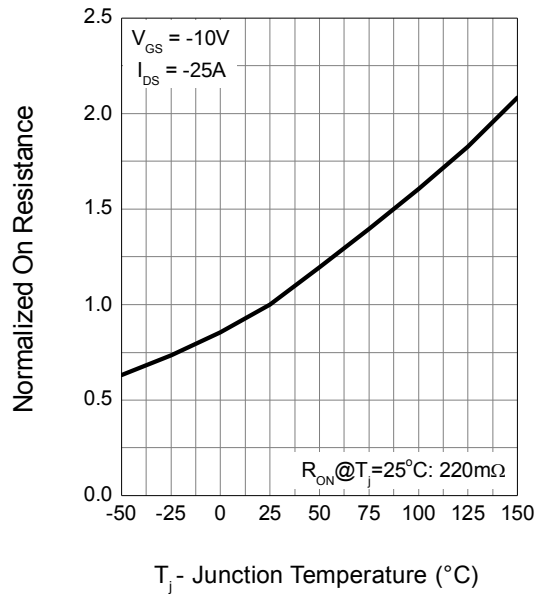
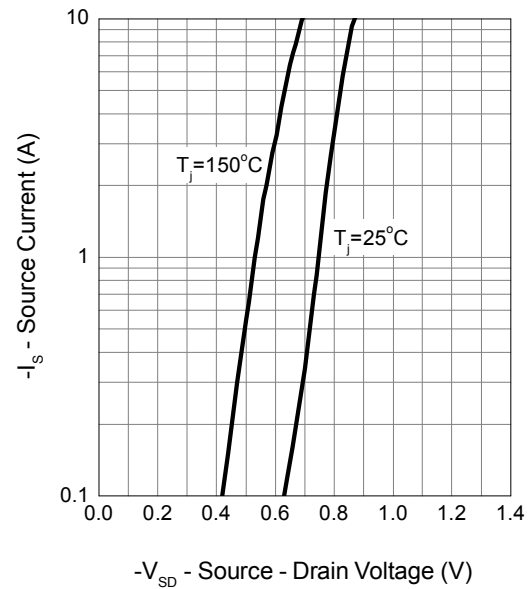
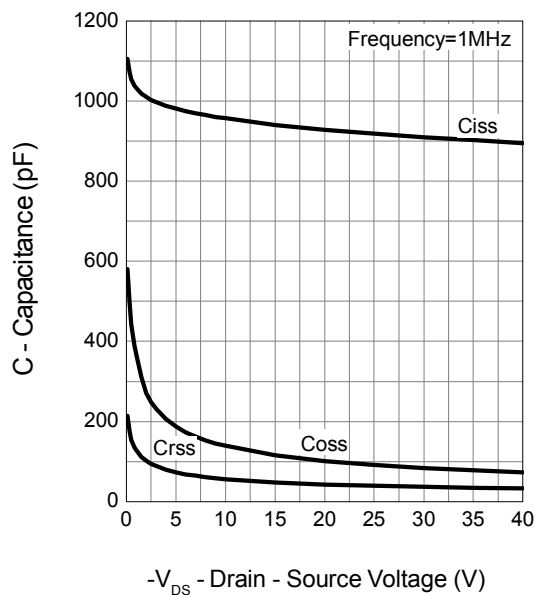
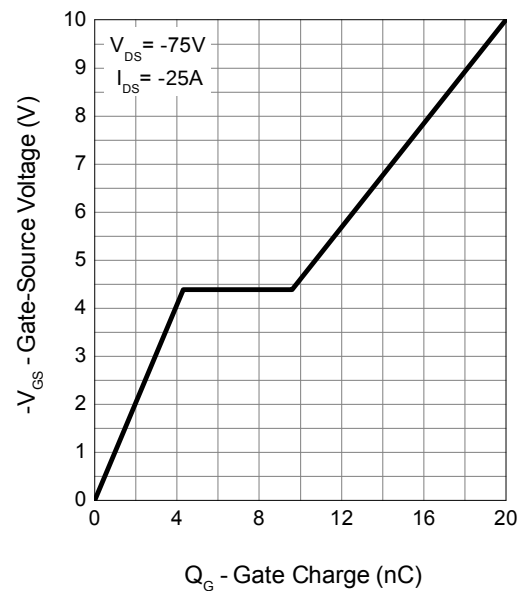
Typical Operating Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


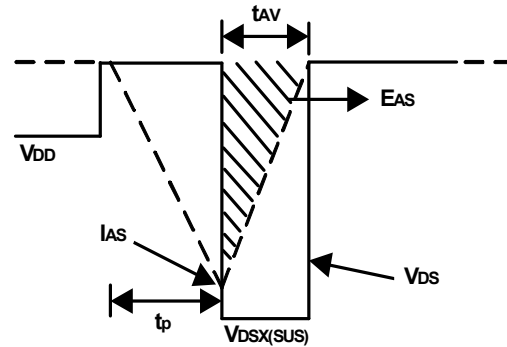
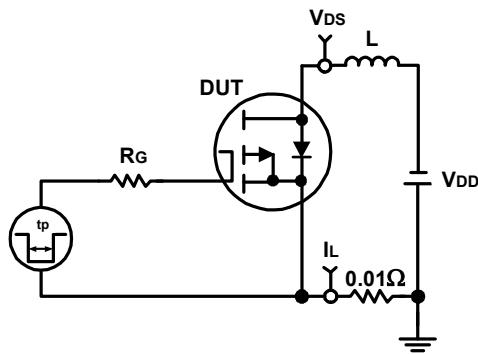
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


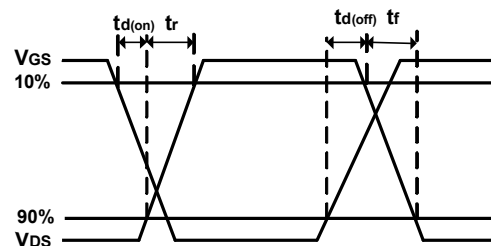
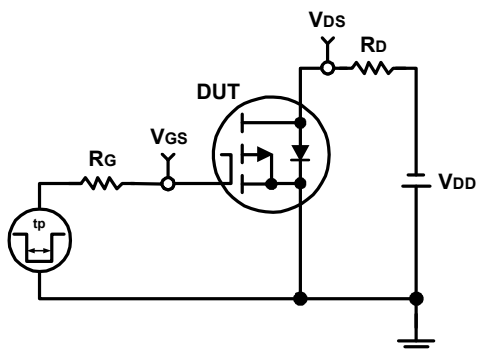
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Information

