

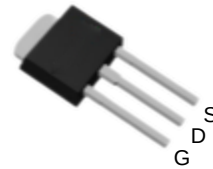
Features

- -100V/-35A,
 $R_{DS(ON)} = 80m\Omega(\text{typ.}) @ V_{GS} = -10V$
 $R_{DS(ON)} = 85m\Omega(\text{typ.}) @ V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)
- 100% UIS Tested

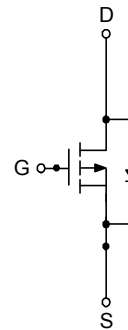
Applications

- Power Management for Industrial DC / DC Converters.

Pin Description



Top View of TO-251



P-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-100	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		-35	A
I _{AS} ^a	Avalanche Current, Single pulse	L=0.5mH	-40	A
E _{AS} ^a	Avalanche Energy, Single pulse	L=0.5mH	400	mJ
I _{DP} ^b	Pulse Drain Current Tested	T _C =25°C	-105	A
I _D	Continuous Drain Current	T _C =25°C	-35	
		T _C =100°C	-26	
P _D	Maximum Power Dissipation	T _C =25°C	62.5	W
		T _C =100°C	25	
R _{θJC}	Thermal Resistance-Junction to Case		2	°C/W
R _{θJA} ^d	Thermal Resistance-Junction to Ambient	Steady State	55	°C/W

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

Note b : Pulse width limited by max. junction temperature.

Note c : Wire limited.

Note d : $R_{\theta JA}$ steady state $t=999\text{s}$. $R_{\theta JA}$ is measured with the device mounted on 1in^2 , FR-4 board with 2oz. Copper.

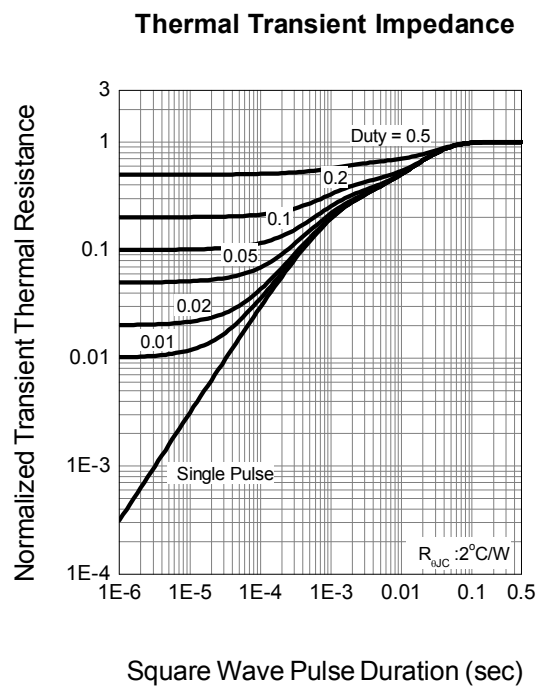
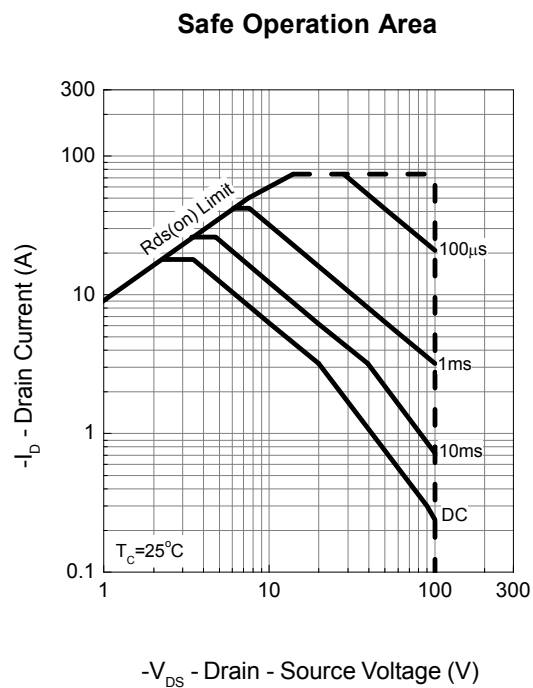
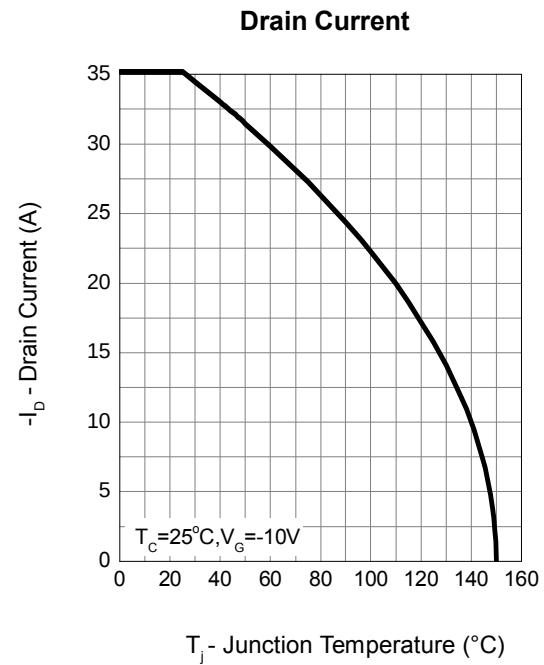
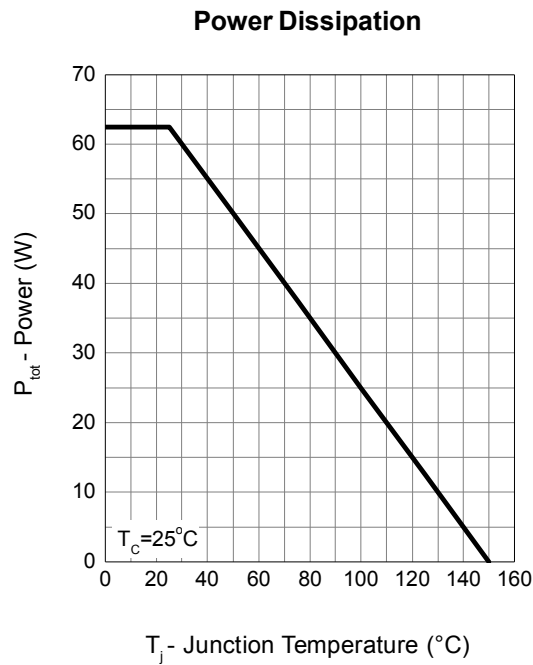
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-80V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1	-2	-3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^e	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-9A V _{GS} =-4.5V, I _{DS} =-6A	-	80 85	90 102	mΩ mΩ
Diode Characteristics						
V _{SD} ^e	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr}	Reverse Recovery Time	I _{SD} =-9A, dI _{SD} /dt=100A/μs	-	38	-	ns
Q _{rr}	Reverse Recovery Charge		-	65	-	nC
Dynamic Characteristics ^f						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	5	10	Ω
C _{iSS}	Input Capacitance	V _{GS} =0V, V _{DS} =-30V, Frequency=1.0MHz	-	1780	2314	pF
C _{oss}	Output Capacitance		-	120	-	
C _{rss}	Reverse Transfer Capacitance		-	68	-	
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	16	
t _{d(OFF)}	Turn-off Delay Time		-	50	90	
t _f	Turn-off Fall Time		-	22	40	
Gate Charge Characteristics ^f						
Q _g	Total Gate Charge	V _{DS} =-50V, V _{GS} =-10V, I _{DS} =-9A	-	39	55	nC
Q _{gs}	Gate-Source Charge		-	6.3	-	
Q _{gd}	Gate-Drain Charge		-	7.9	-	

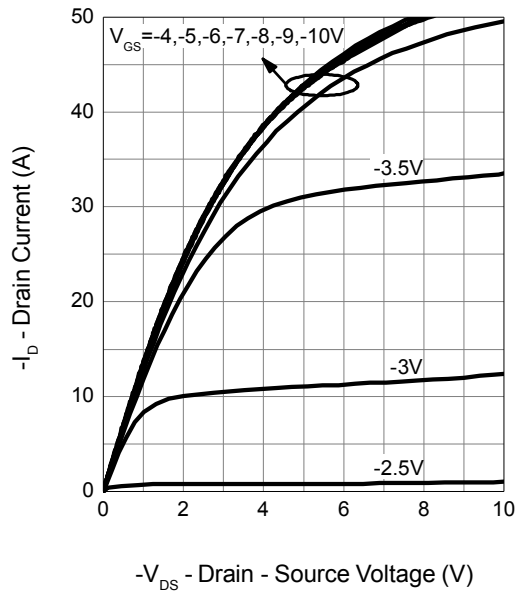
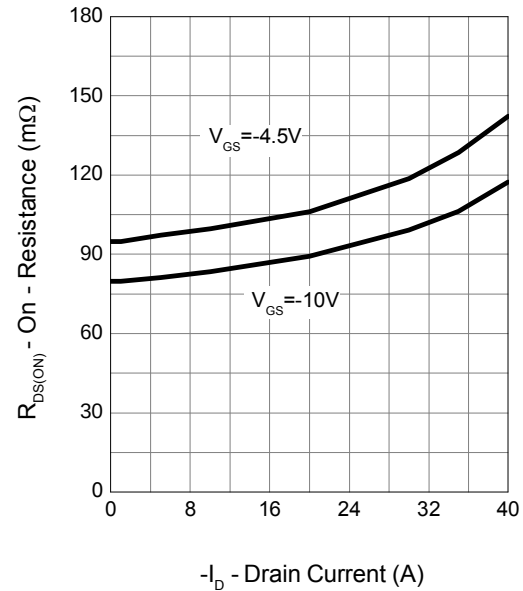
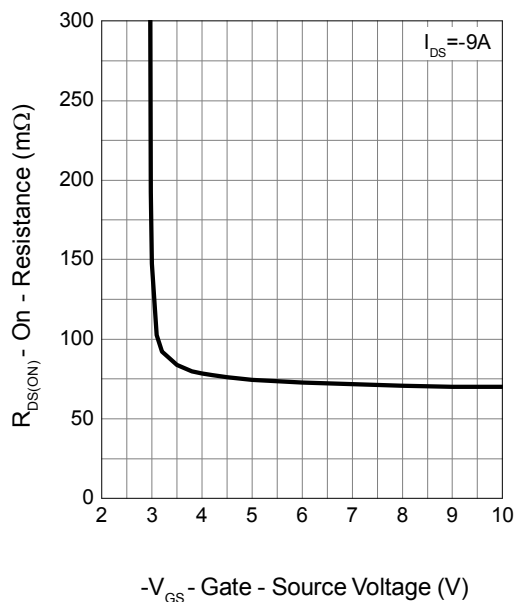
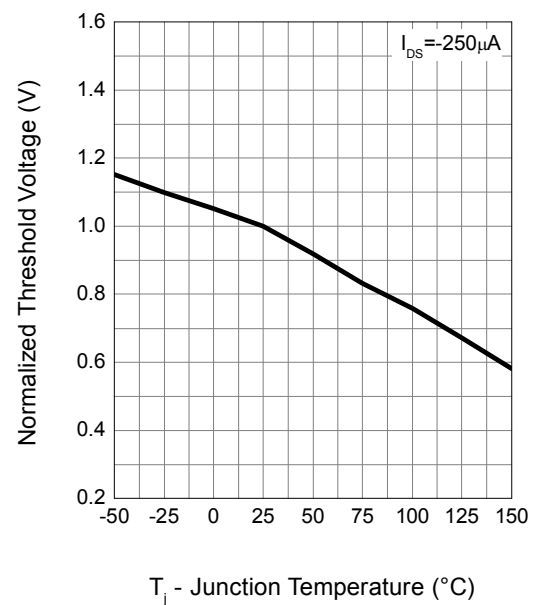
Note e : Pulse test; pulse width≤300μs, duty cycle≤2%.

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

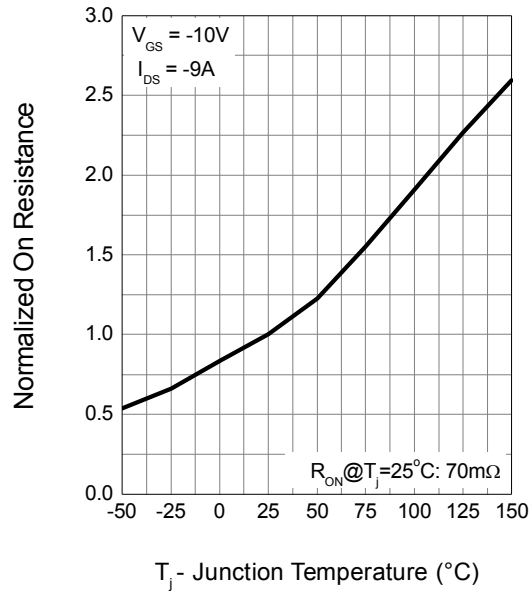
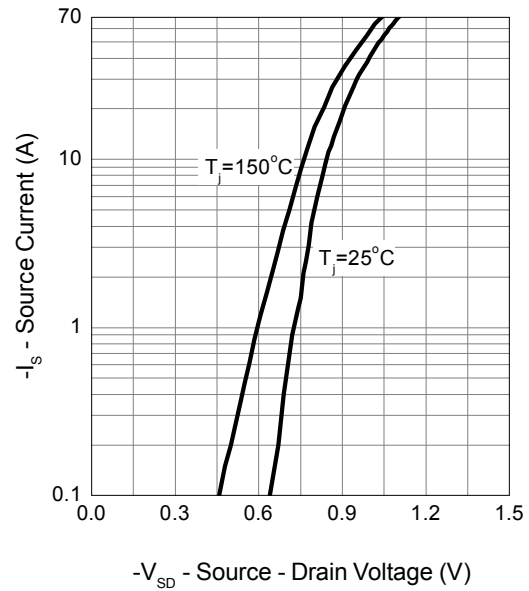
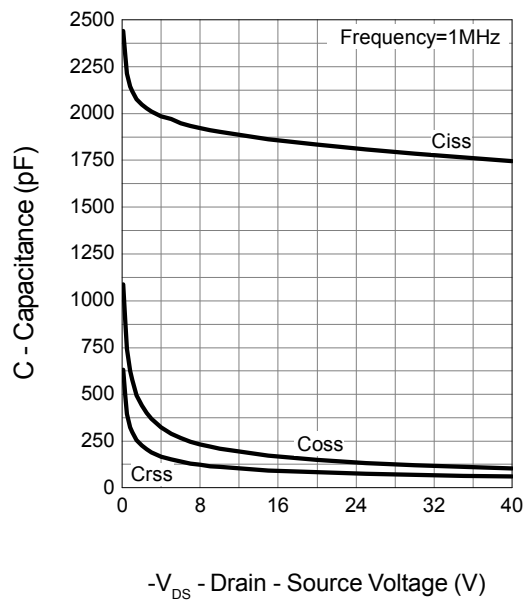
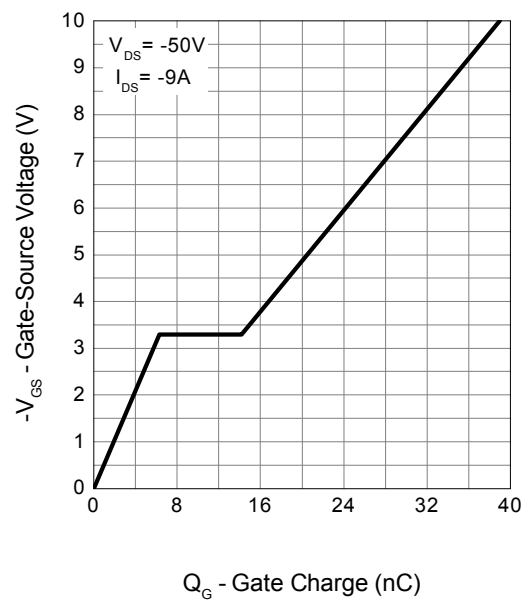
Typical Operating Characteristics



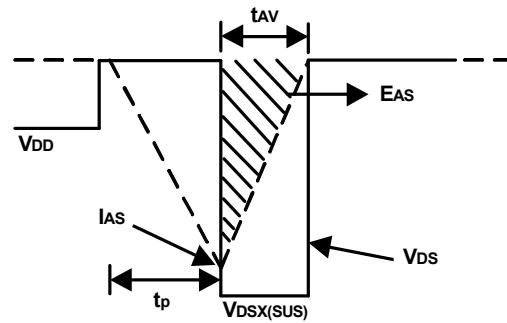
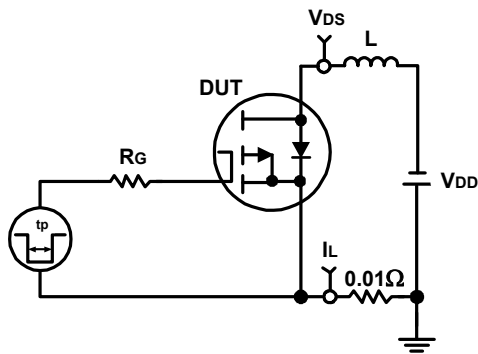
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


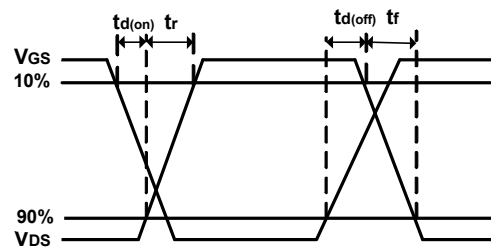
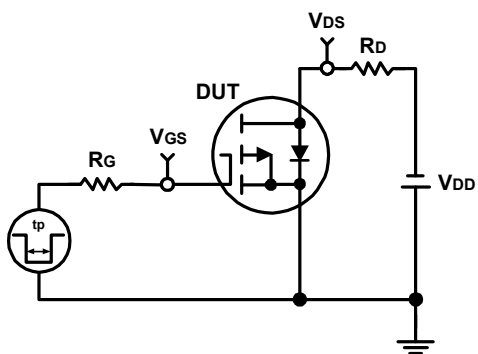
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


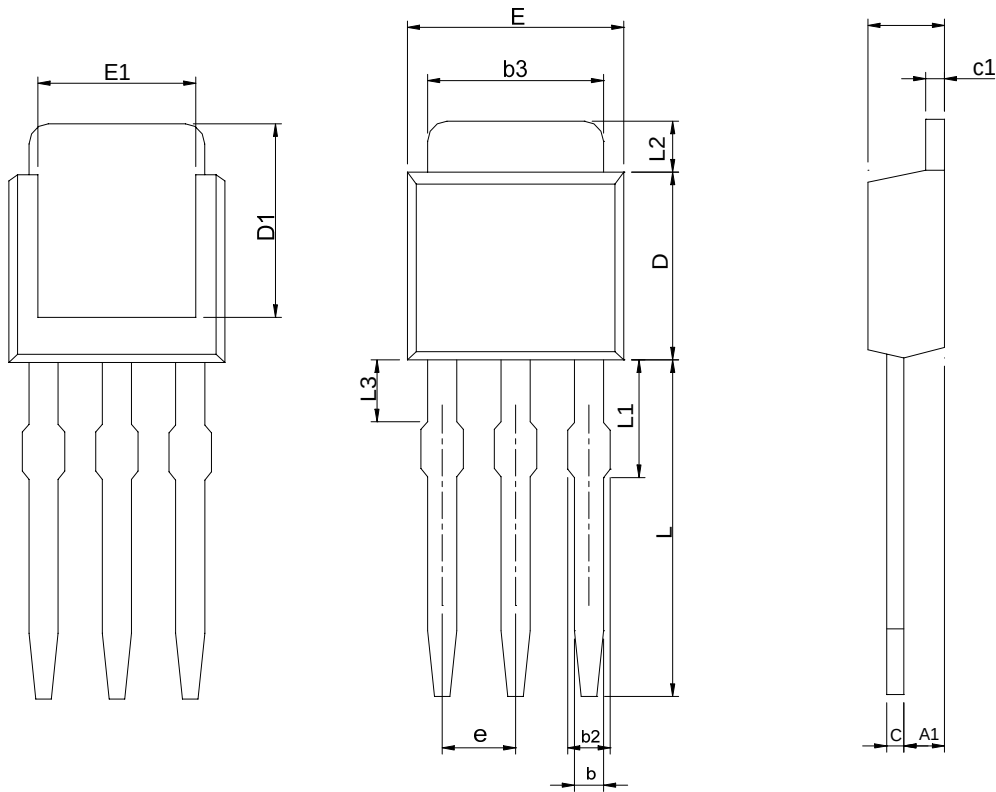
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

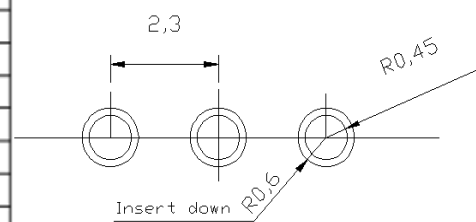


Package Information



SYMBOL	TO-251			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.184	2.388	0.086	0.094
A1	0.890	1.143	0.035	0.045
b	0.635	0.890	0.025	0.035
b2	0.910	1.143	0.036	0.045
b3	4.953	5.460	0.195	0.215
c	0.457	0.610	0.018	0.024
c1	0.457	0.890	0.018	0.035
D	5.334	6.223	0.210	0.245
D1	5.207	-	0.205	-
E	6.350	6.730	0.250	0.265
E1	4.320	-	0.170	-
e	2.29 BSC		0.090 BSC	
L	7.000	9.650	0.280	0.380
L1	1.905	2.290	0.075	0.090
L2	0.890	1.270	0.035	0.050
L3	1.143	1.520	0.045	0.060

RECOMMENDED LAND PATTERN



UNIT: mm