

Features

- Fast switching
- Low Gate Charge
- Improved dv/dt capability
- 100% avalanche tested
- Green Device Available

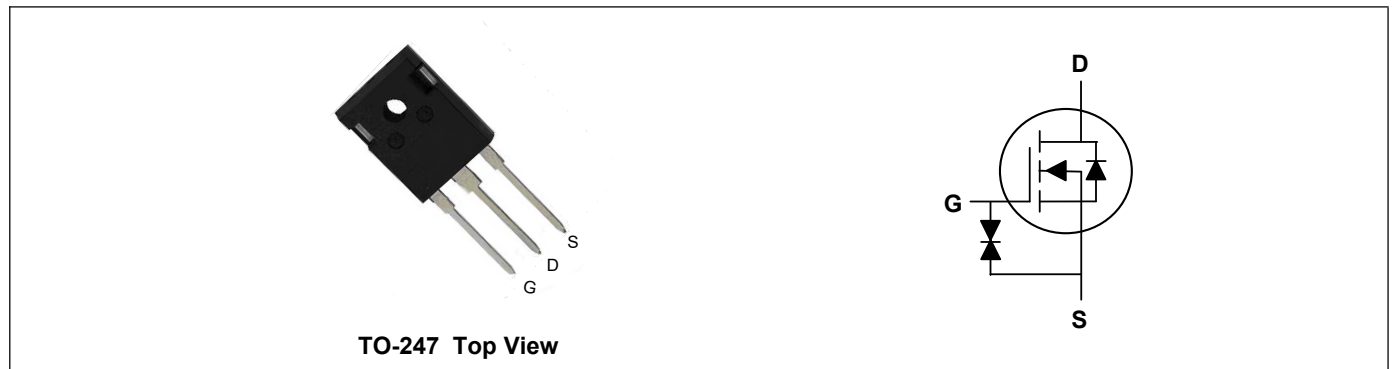
Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- AC to DC Converters

Product Summary



V_{DS}	900	V
I_D	13	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	0.8	Ω



Absolute Maximum Ratings($T_C=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	900	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current ¹	I_D	13	A
Pulsed Drain Current ²	I_{DM}	52	A
Single Pulse Avalanche Energy ³	E_{AS}	268	mJ
Total Power Dissipation ⁴	P_D	297	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	40	$^\circ C/W$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	0.42	$^\circ C/W$

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	900	---	---	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	V _{GS} =10V, I _D =6.5A	---	0.6	0.8	Ω
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	3	---	5	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =900V, V _{GS} =0V, T _J =25°C	---	---	25	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	---	---	±10	uA
Total Gate Charge	Q _g	V _{DD} =720V, V _{GS} =10V, I _D =13A	---	76	---	nC
Gate-Source Charge	Q _{gs}		---	20	---	
Gate-Drain Charge	Q _{gd}		---	27	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =450V, R _G =25Ω, I _D =13A	---	66	---	ns
Rise Time	T _r		---	59	---	
Turn-Off Delay Time	T _{d(off)}		---	140	---	
Fall Time	T _f		---	78	---	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	3450	---	pF
Output Capacitance	C _{oss}		---	370	---	
Reverse Transfer Capacitance	C _{rss}		---	40	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S	T _C =25°C	---	---	13	A
Pulsed Source Current	I _{SM}		---	---	112	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =13A, T _J =25°C	---	---	1.4	V
Reverse Recovery Time	t _{rr}	I _S =13A, V _{GS} =0V di/dt=100A/μs, T _J =25°C	---	1000	---	nS
Reverse Recovery Charge	Q _{rr}		---	20	---	nC

Note:

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3.The EAS data shows Max. rating. The test condition is V_{DD}=50V, V_{GS}=10V
- 4.The power dissipation is limited by 150°C junction temperature

Typical Characteristics

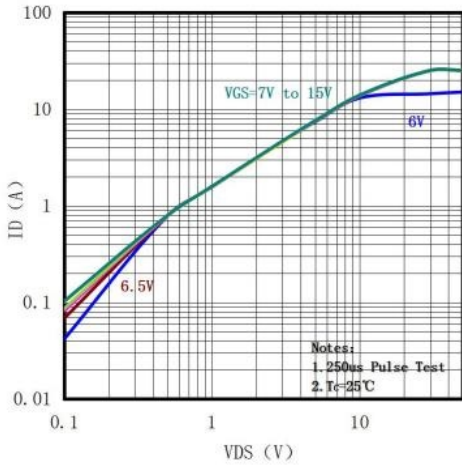


Fig1 Typical Output Characteristics, Tc=25°C

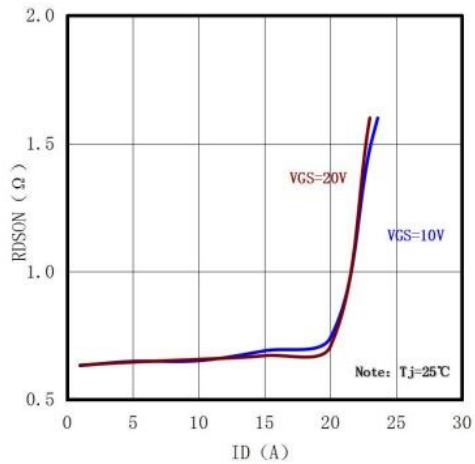


Fig2 On-Resistance Vs. Drain Current and Gate Voltage

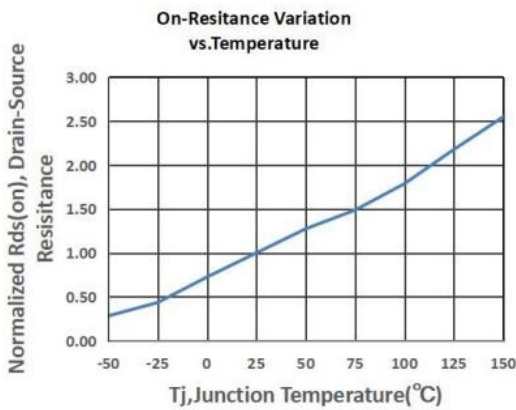


Fig3 Normalized On-Resistance Vs. Temperature

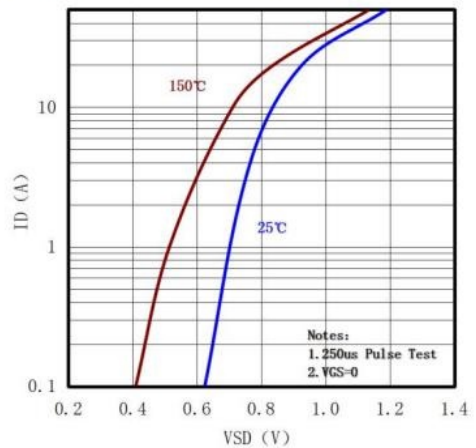


Fig4 Typical Source-Drain Diode Forward Voltage

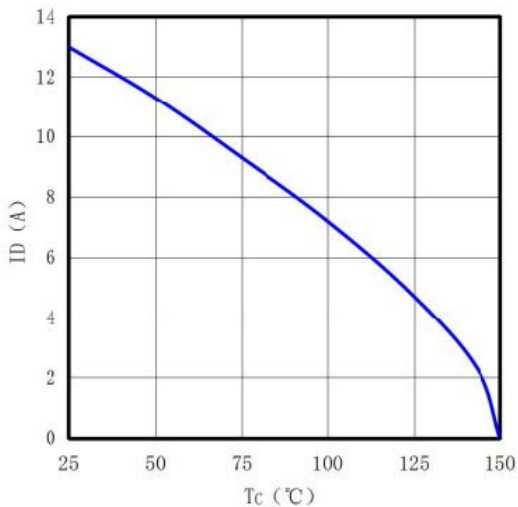


Fig5 Maximum Drain Current Vs. Case Temperature

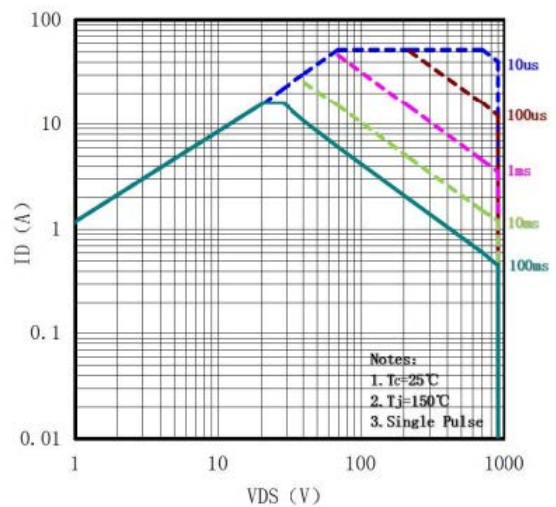
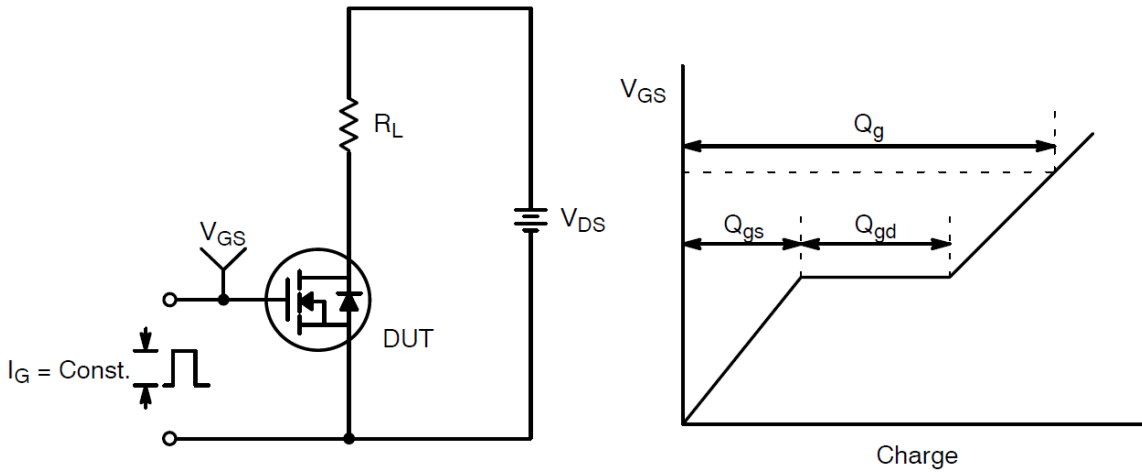
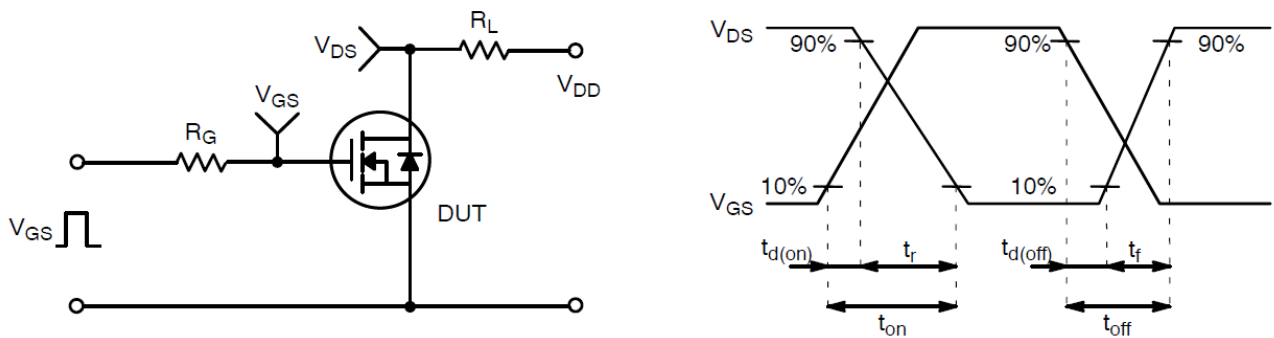


Fig6 Maximum Safe Operating Area

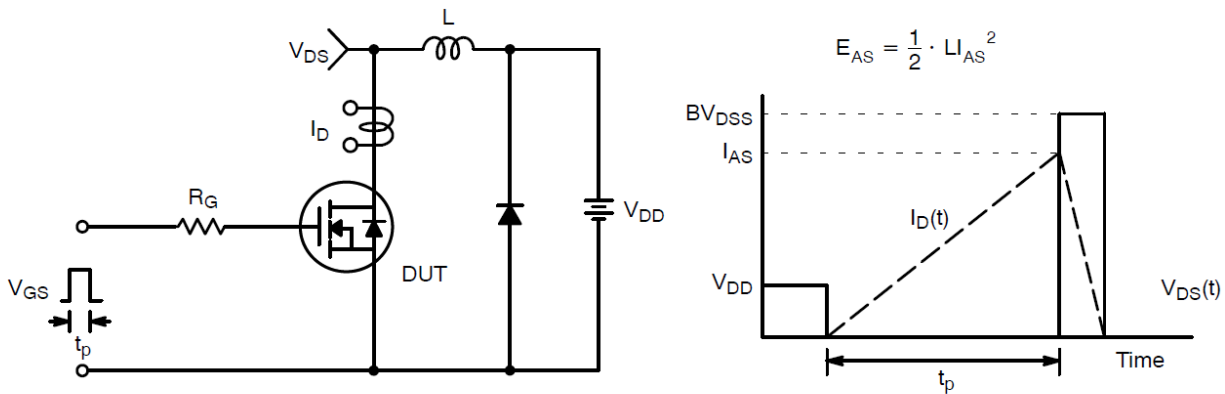
Test Circuit and Waveform:



Gate Charge Test Circuit & Waveform

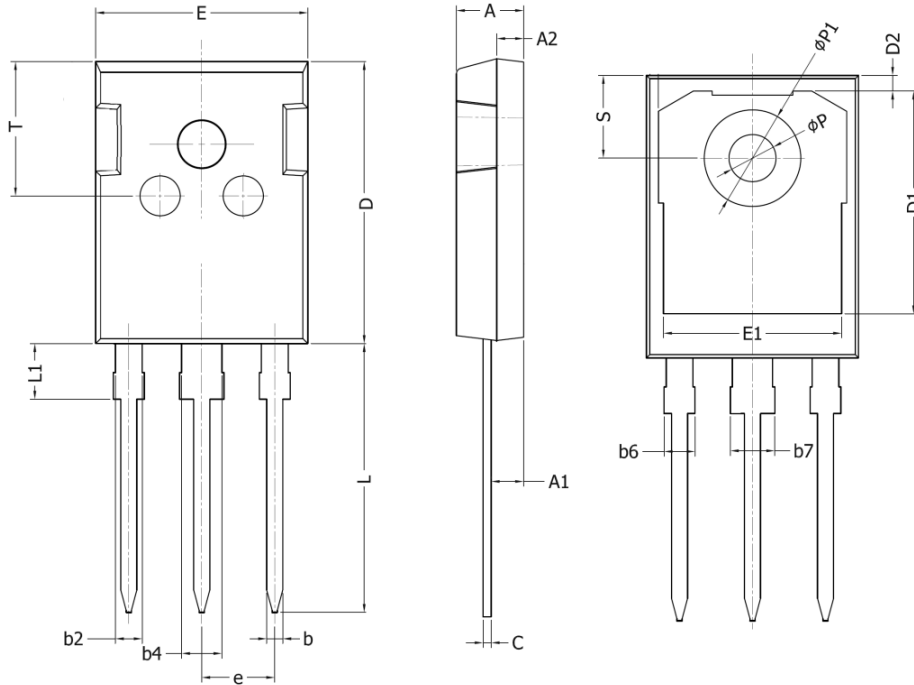


Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

TO-247 Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.90	5.20
A1	2.31	2.51
A2	1.9	2.1
b	1.16	1.26
b2	1.96	2.06
b4	2.96	3.06
b6	-	2.25
b7	-	3.25
C	0.59	0.66
D	20.90	21.20
D1	16.25	16.85
D2	1.05	1.35
E	15.75	16.10
E1	13.00	13.60
e	5.436 BSC	
L	19.80	20.20
L1	-	4.30
P	3.40	3.60
P1	7.00	7.40
S	6.05	6.25
T	9.80	10.20