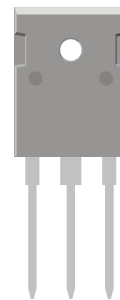


Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 31nC (Typ.).
- ☐ BVDSS=100V, I_D= 30A
- ☐ R_{DS(on)} : 36 mΩ (Max) @V_G=10V
- ☐ 100% Avalanche Tested



TO-247



1. Anode 2. Cathode 3. Anode

Absolute Maximum Ratings* (T_c=25°C Unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DSS}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current-Continuous	I _D	30	A
Drain Current-Continuous(T _c =100°C)	I _D (100°C)	12	A
Pulsed Drain Current	I _{DM}	60	A
Maximum Power Dissipation	P _D	55	W
Single pulse avalanche energy ^(Note 5)	E _{AS}	250	mJ
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case(Note 2)	R _{θJC}	2.27	°C/W
--	------------------	------	------

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	110	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.1	1.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	31	35	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=50V, I_D=9A$	12	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V,$ $F=1.0MHz$	-	1350	-	PF
Output Capacitance	C_{oss}		-	240	-	PF
Reverse Transfer Capacitance	C_{rss}		-	180	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=2A, R_L=15\Omega$ $V_{GS}=10V, R_G=2.5\Omega$	-	13.8	-	nS
Turn-on Rise Time	t_r		-	9.3	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	43.8	-	nS
Turn-Off Fall Time	t_f		-	11.4	-	nS
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=3A,$ $V_{GS}=10V$	-	31		nC
Gate-Source Charge	Q_{gs}		-	6.4	-	nC
Gate-Drain Charge	Q_{gd}		-	9.4	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=9A$	-	-	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	30	A
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. EAS condition : $T_J=25^{\circ}\text{C}, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25\Omega$

Typical Electrical and Thermal Characteristics (Curves)

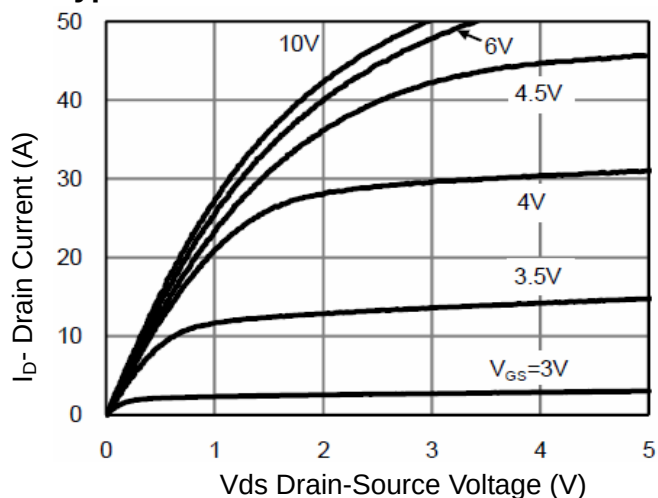


Figure 1 Output Characteristics

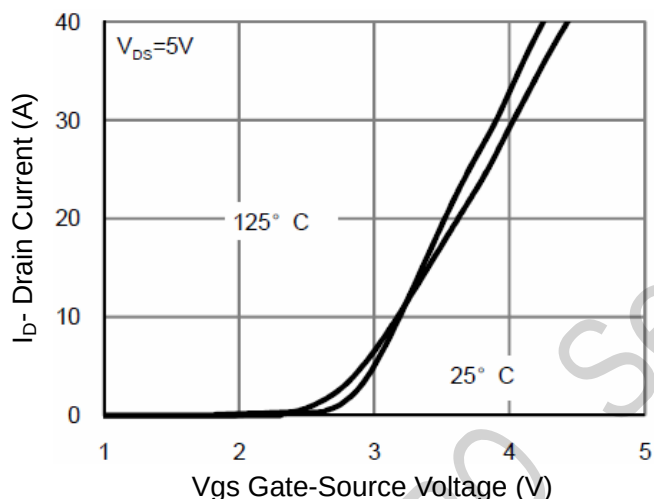


Figure 2 Transfer Characteristics

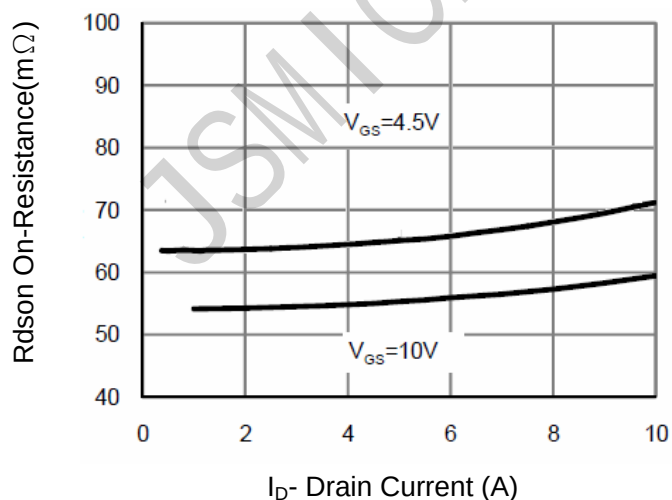


Figure 3 Rdson- Drain Current

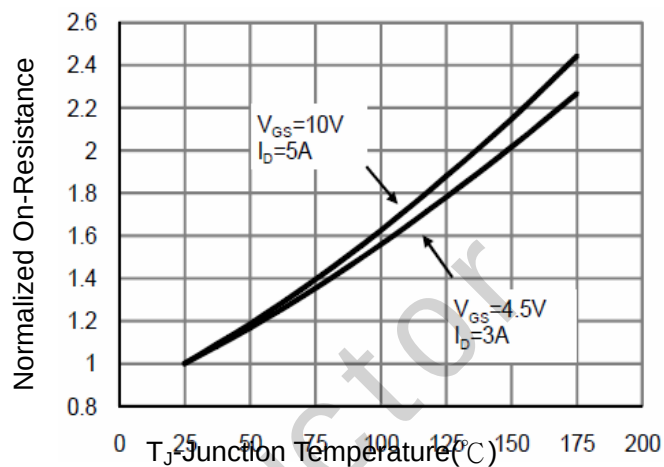


Figure 4 Rdson-Junction Temperature

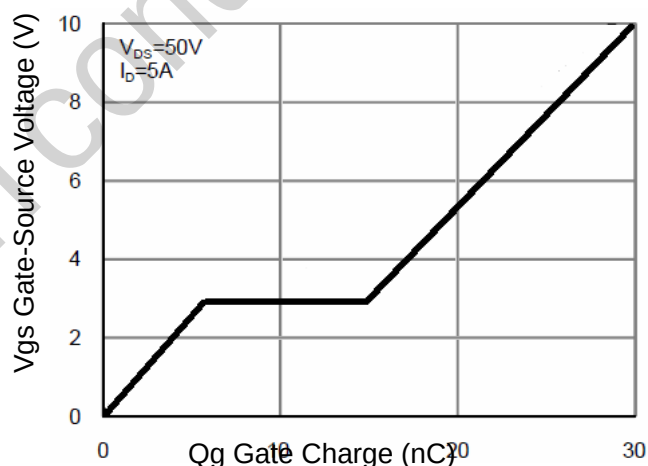


Figure 5 Gate Charge

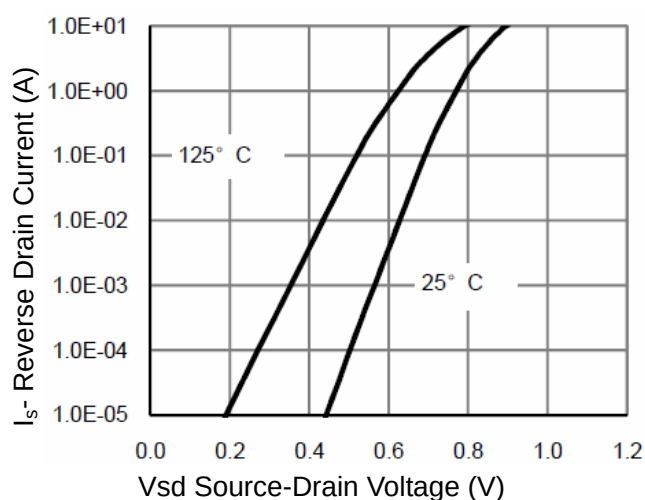
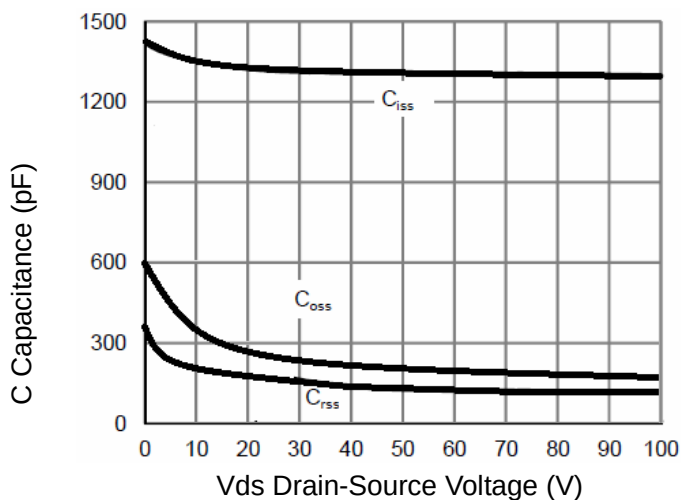
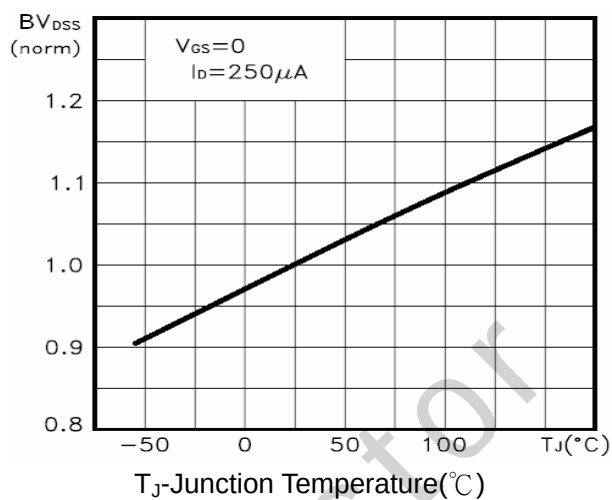
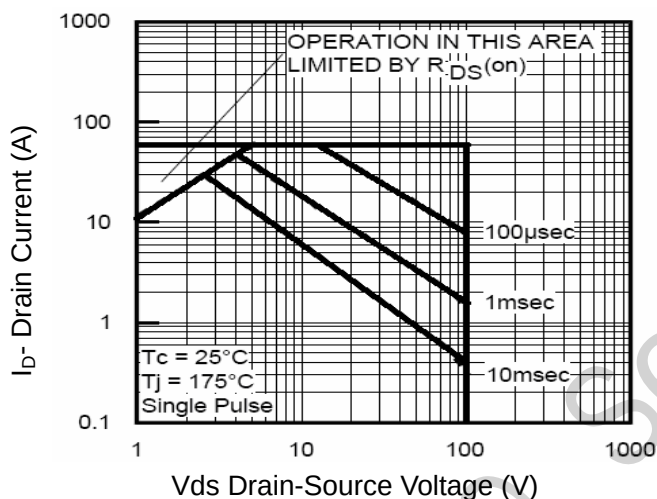
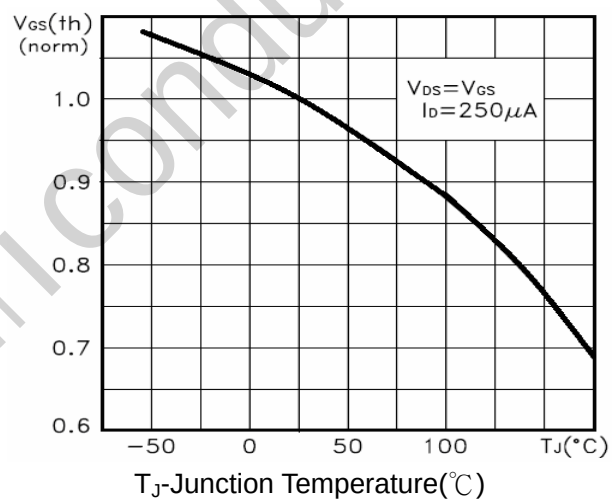
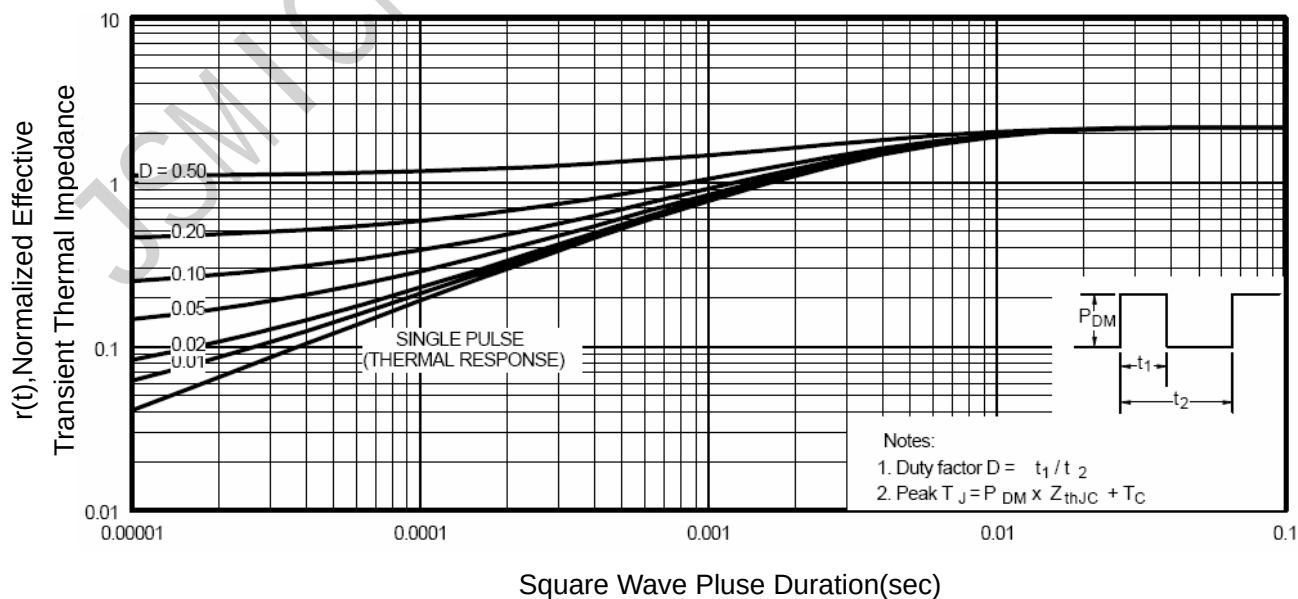
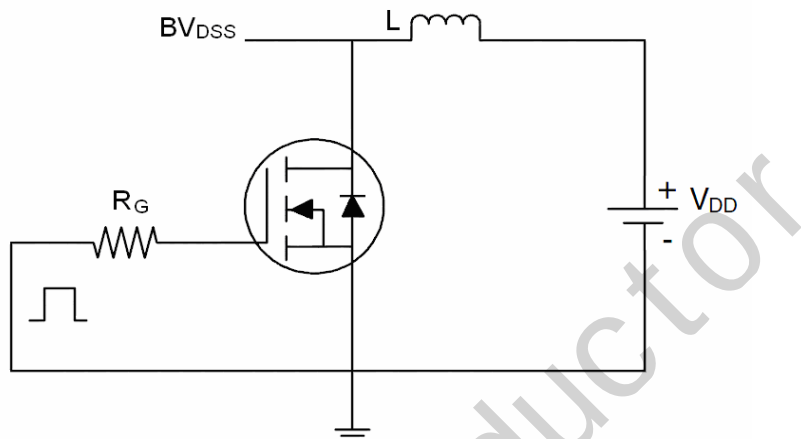


Figure 6 Source- Drain Diode Forward

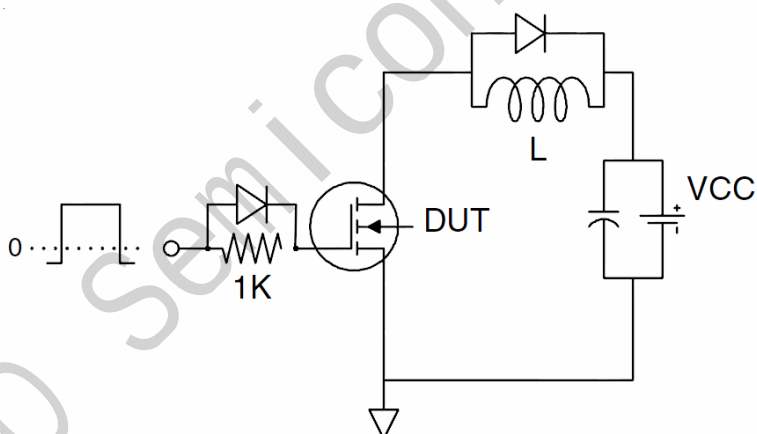

Figure 7 Capacitance vs Vds

Figure 9 BV_{DSS} vs Junction Temperature

Figure 8 Safe Operation Area

Figure 10 $V_{GS(th)}$ vs Junction Temperature

Figure 11 Normalized Maximum Transient Thermal Impedance

Test Circuit

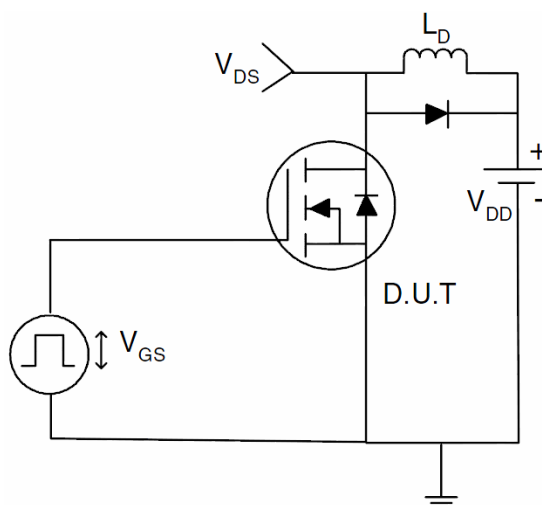
1) E_{AS} test Circuit



2) Gate charge test Circuit

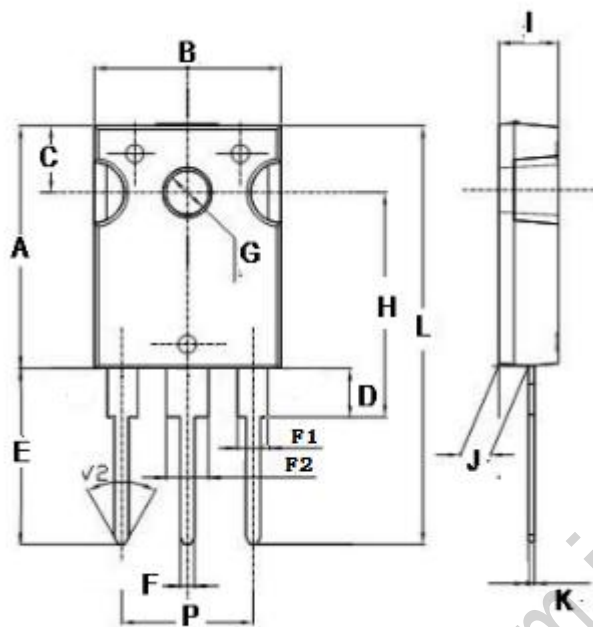


3) Switch Time Test Circuit



Package Information

TO-247



Dim	Min	Max
A	20.0	22.0
B	15.5	16.0
C	5.7	6.3
D	4.0	4.4
E	19.0	21.0
F	1.1	1.3
G	3.5	3.8
H	18.3	20.2
I	4.9	5.2
J	2.3	2.5
K	0.55	0.65
L	39.0	42.0
P	10.7	10.9
F1	1.9	2.1
F2	2.9	3.1
mm		