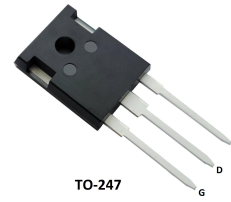


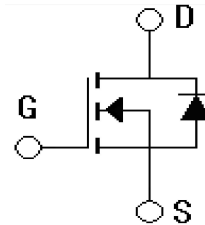
## Features

- $V_{DS}=1000V, I_D=18A$
- Low  $C_{rss}$
- Low gate charge
- Improved  $dv/dt$  capability



## Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS



## Absolute Ratings ( $T_C=25^\circ C$ )

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DSS}$	1000	V
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Drain Current-continuous	$I_D$ $T_C=25^\circ C$	18	A
	$T_C=100^\circ C$	12	
Drain Current-pulse <sup>(1)</sup>	$I_{DM}$	72	A
Single Pulsed Avalanche Energy ( $T_j=25^\circ C, I_D=I_{AR}, V_{DD}=50V$ )	$E_{AS}$	750	mJ
Maximum Power Dissipation	PD $T_C=25^\circ C$	470	W
	Derate above $25^\circ C$	3.76	W/ $^\circ C$
Peak Diode Recovery voltage slope <sup>(2)</sup>	$dv/dt$	4.1	V/ns
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55~+175	$^\circ C$

1. Pulse width Limited by safe operating arer

## Electrical Characteristics ( $T_{CASE}=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	1000	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=V_{DSS}, V_{GS}=0V, T_C=25^\circ C$	-	-	1	$\mu A$
		$T_C=125^\circ C$	-	-	10	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	$\pm 100$	nA

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	-	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=9A$	-	0.55	0.75	$\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=40V, I_D=18A$	-	27	-	S
Dynamic Characteristics						
Input capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	2850	-	pF
Output capacitance	$C_{oss}$		-	290	-	pF
Reverse transfer capacitance	$C_{rss}$		-	30	-	pF

### Electrical Characteristics( $T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DS}=500V, I_D=18A, V_{GS}=10V, R_G=25\Omega$	-	40	-	ns
Turn-On rise time	$t_r$		-	50.2	-	ns
Turn-Off delay time	$t_{d(off)}$		-	234.6	-	ns
Turn-Off rise time	$t_f$		-	67.2	-	ns
Total Gate Charge	$Q_g$	$V_{DS}=800V, I_D=18A, V_{GS}=10V, R_G=25\Omega$	-	66.64	-	nC
Gate-Source charge	$Q_{gs}$		-	15.68	-	nC
Gate-Drain charge	$Q_{gd}$		-	24.92	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	$I_{SD}$	$V_{GS}=0V, I_S=18A$	-	-	1.5	V
Diode Forward Current	$I_S$		-	-	18	A
Reverse recovery time	$T_{rr}$	$I_S=18A, di/dT=100A/\mu S$	-	590	-	nS
Reverse recovery charge	$Q_{rr}$	$VR=100V, VGS=0V, T_j=150^{\circ}C$	-	6702	-	nC

## Thermal Characteristic

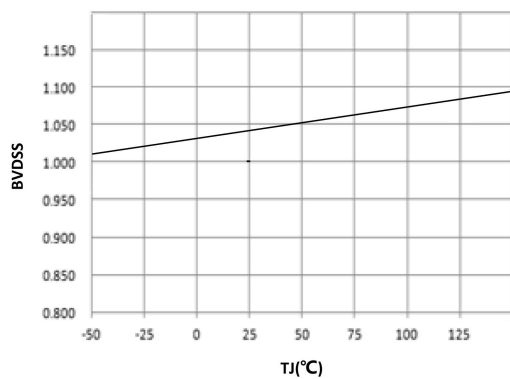
Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.212	$^{\circ}C/W$
Thermal Resistance, junction to Ambient	$R_{th(j-A)}$	62.5	$^{\circ}C/W$

Notes:

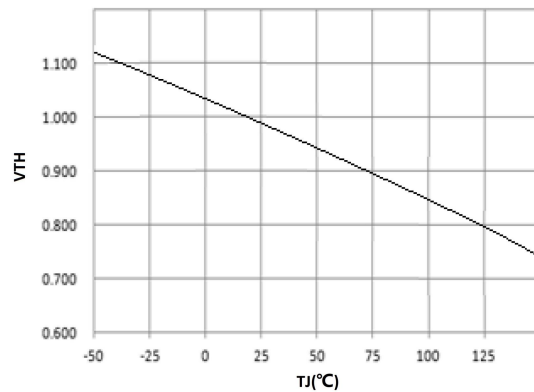
1. Pulse width limited by maximum junction temperature
2.  $L=8.9mH$ ,  $I_{AS}=18A$ ,  $V_{DD}=100V$ ,  $R_G=25\ \Omega$ , Starting  $T_J=25^{\circ}C$
3.  $ISD \leq 18A$ ,  $di/dt \leq 200A/\mu s$ ,  $V_{DD} \leq BV_{DSS}$ , Starting  $T_J=25^{\circ}C$
4. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$
5. Essentially independent of operating temperature

## Electrical Characteristics

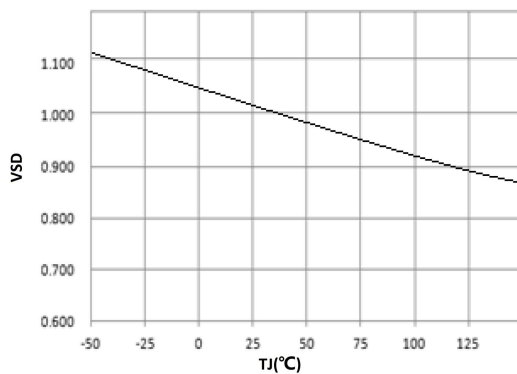
Normalized  $BV_{DSS}$  vs. temperature



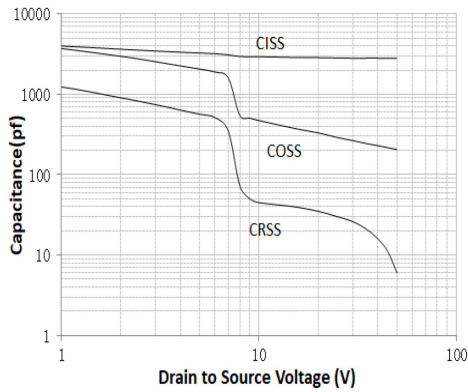
Normalized  $V_{TH}$  vs. temperature



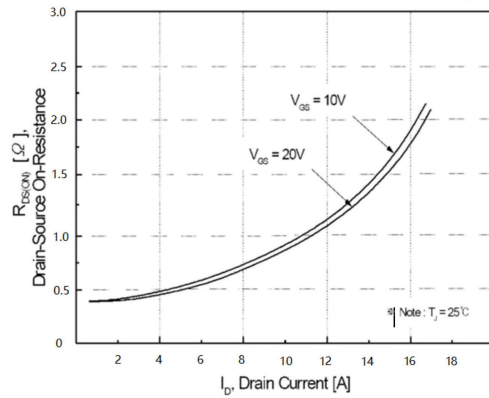
Normalized  $V_{SD}$  vs. temperature



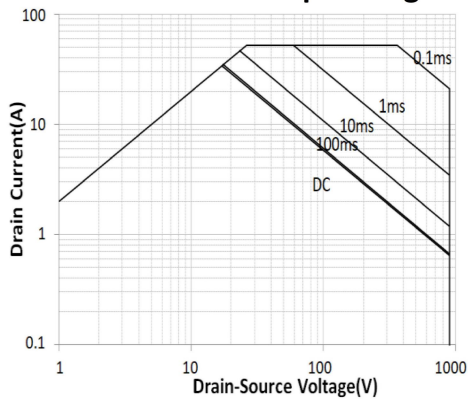
### Capacitance Characteristics



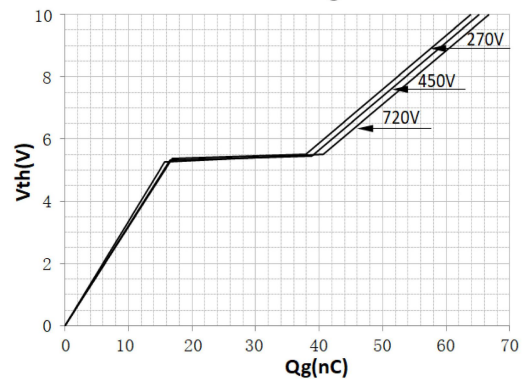
### On-Resistance Variation vs. I<sub>D</sub>



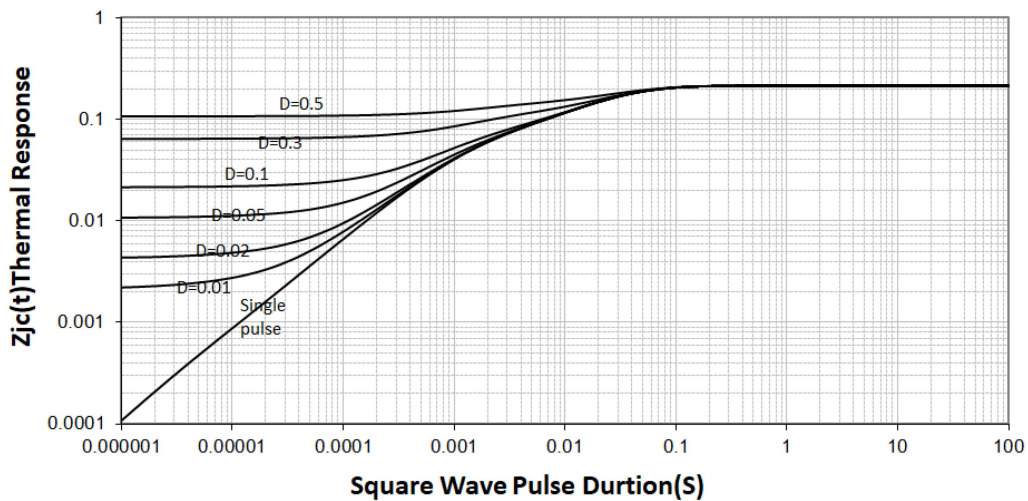
### Maximum Safe Operating Area



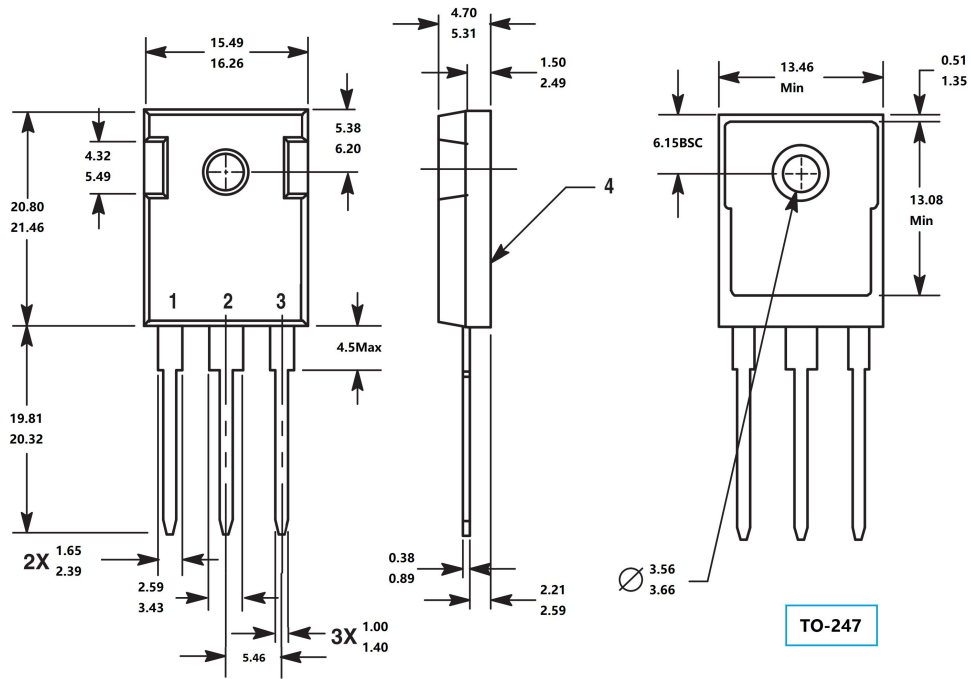
### Gate charge vs. V<sub>GS</sub>



### Thermal Impedance



Package Mechanical Data



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