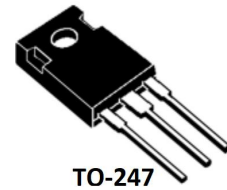


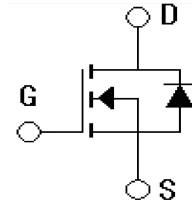
Features

- $V_{DS}=200V, I_D=100A$
 $R_{DS(on)}=0.038\Omega @ V_{GS}=10V$
- High density cell design for ultra low R_{dson}
- Low gate charge
- Improved dv/dt capability
- RoHS product



Applications

- Power switching application
- Isolated DC/DC converters in Telecom and Industrial
- Synchronous Rectification in DC/DC Converters



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	200	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	100	A
Drain Current-pulse (note 1)	I_{DM}	400	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}	560	mJ
Maximum Power Dissipation	PD $T_C=25^\circ C$ Derate above $25^\circ C$	300	W
		2.0	W/ $^\circ C$
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	200	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	25	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 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	$R_{DS(on)}$	$V_{DS}=10V, I_D=50A$	-	-	0.038	Ω
Forward Transconductance	g_{fs}	$V_{DS}=50V, I_D=50A$ (note 4)	27	-	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1MHz$	-	4057	-	pF
Output capacitance	C_{oss}		-	603	-	pF
Reverse transfer capacitance	C_{rss}		-	161	-	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	$t_{d(on)}$	$V_{DD}=100V, I_D=50A,$ $R_G=1.8\Omega, V_{GS}=10V$ (note 4,5)	-	17	-	ns
Turn-On rise time	t_r		-	60	-	ns
Turn-Off delay time	$t_{d(off)}$		-	55	-	ns
Turn-Off rise time	t_f		-	48	-	ns
Total Gate Charge	Q_g	$V_{DS}=160V,$ $I_D=50A,$ $V_{GS}=10V$ (note 4,5)	-	234	-	nC
Gate-Source charge	Q_{gs}		-	38	-	nC
Gate-Drain charge	Q_{gd}		-	110	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	V_{SD}	$V_{GS}=0V, I_S=100A$	-	-	1.3	V
Reverse recovery time	T_{rr}	$I_S=50A, DI/DT=100A/\mu S$	-	268	402	nS
Reverse recovery charge	Q_{rr}		-	1.9	2.8	μC

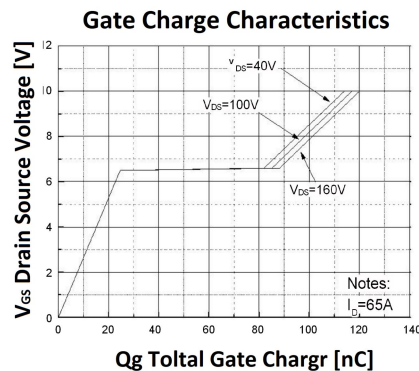
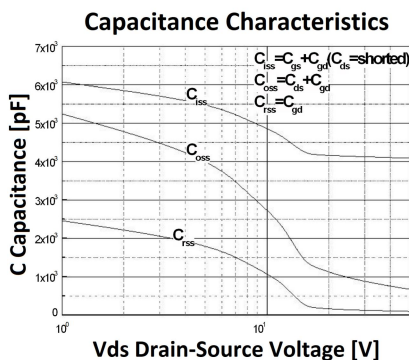
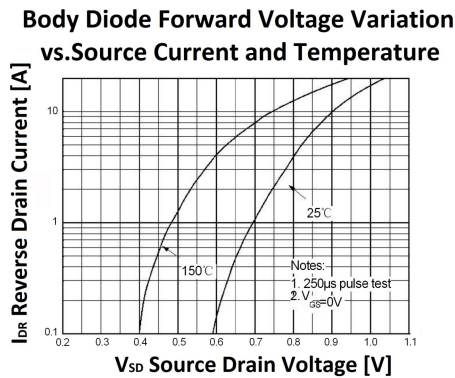
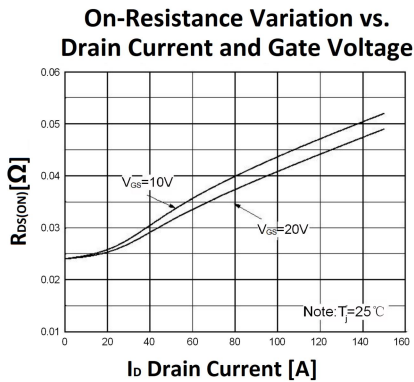
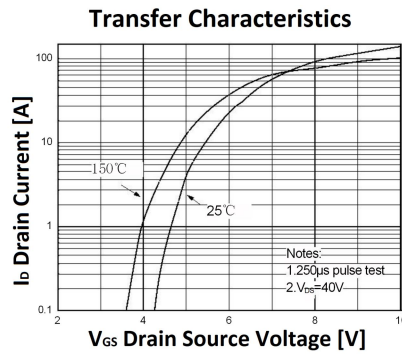
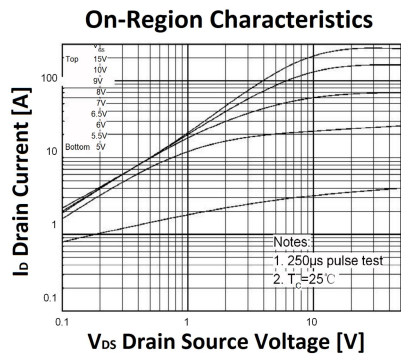
Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.50	$^{\circ}C/W$
Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	40	$^{\circ}C/W$

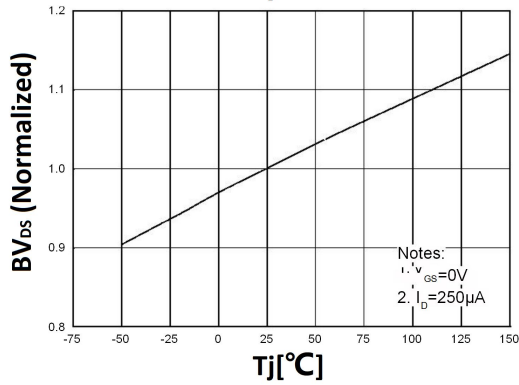
Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. $I_{AS}=50A$, $L=1.5mH$, $R_G=25 \Omega$, Starting $T_J=25^{\circ}C$
3. $I_{SD} \leq 50A$, $di/dt = 486A/us$, $V_{DD} \leq BV_{DSS}$, Starting $T_J \leq 175^{\circ}C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

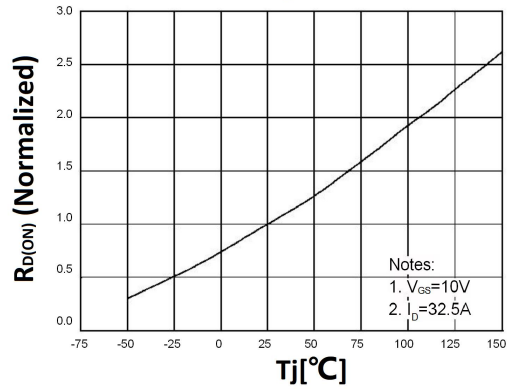
Electrical Characteristics



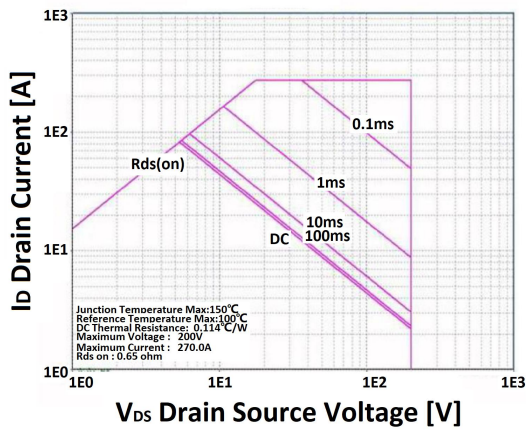
Breakdown Voltage Variation vs. Temperature



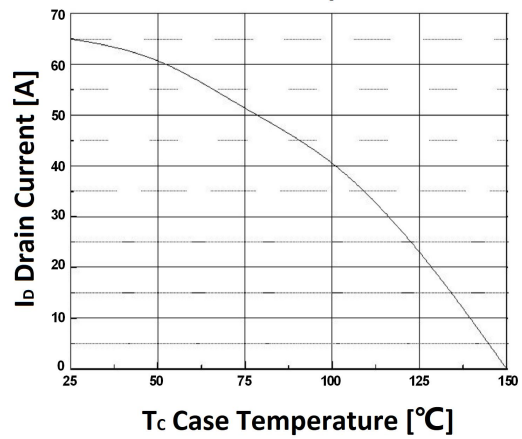
On-Resistance Variation vs. Temperature



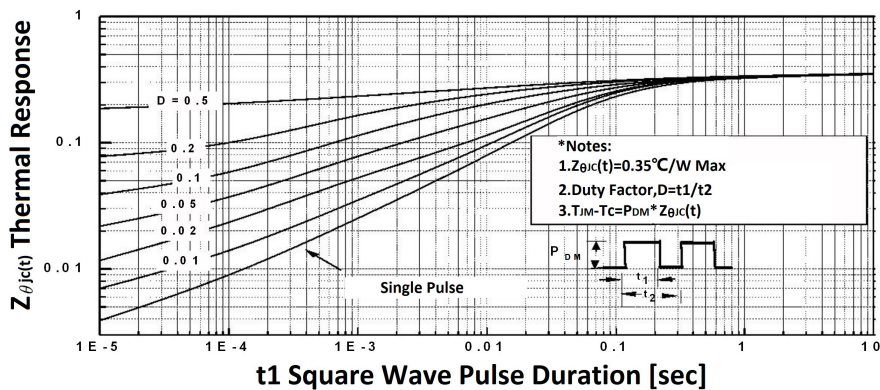
Maximum Safe Operating Area



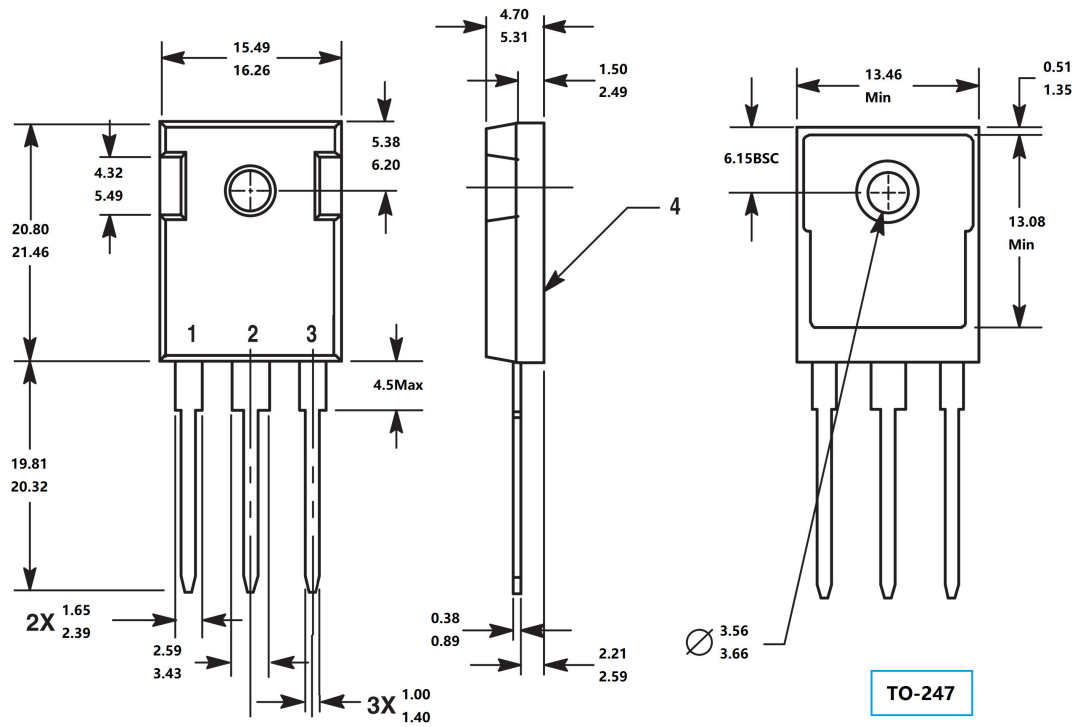
Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve



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