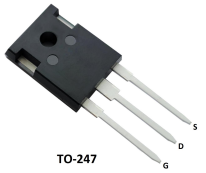
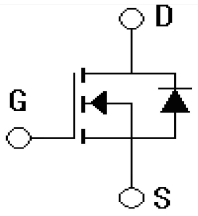
Features

- V_{DS}=250V,I_D=150A,$R_{DS(on).Type}$=20mΩ
- Low gate charge
- Improved dv/dt capability



Applications

- High Efficiency Synchronous Rectification in SMPS
- Uninterruptible Power Supply
- High Speed Power Switching
- Hard Switched and High Frequency Circuits



Absolute Ratings (Tc=25℃)

Parameter	Symbol		Limit	Unit
Drain-Source Voltage	V_{DSS}		250	V
Transient Gate-Source Voltage	V_{GSM}		±30	V
Continuous Gate-Source Voltage	V_{GSS}		±20	V
Drain Current-continuous	I_D		150	A
Drain Current-pulse (note 1)	I_{DM}		600	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}		780	mJ
Peak Diode Recovery dv/dt(note 3)	dv/dt		24	V/ns
Maximum Power Dissipation	P_D	T_C=25℃	500	W
		T_C=100℃	200	
Operating and Storage Temperature Range	T_J,T_{STG}		-55~+150	℃
Maximum Lead Temperature for Soldering Purposes	T_L		300	℃

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Drain-Source Voltage	BV_{DSS}	I_D=250μA,V_{GS}=0V	250	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=V_{DSS},V_{GS}=0V	-	-	20	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V，V_{DS}=0V	-	-	±100	nA

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	3.0	4.0	5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=35A (note 4)	-	20	22	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz (note 5)	-	4100	-	pF
Output capacitance	C_{oss}		-	600	-	pF
Reverse transfer capacitance	C_{rss}		-	180	-	pF
Gate Resistance	R_G	f=1.0MHz	-	2.1	-	Ω
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	V_{DS}=125V, I_D=75A, V_{GS}=10V	-	33	-	ns
Turn-On rise time	t_r		-	154	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	55	-	ns
Turn-Off rise time	t_f		-	109	-	ns
Total Gate Charge	Q_g	V_{DS}=125V, I_D=75A, V_{GS}=10V (note 5)	-	130	-	nC
Gate-Source charge	Q_{gs}		-	22	-	nC
Gate-Drain charge	Q_{gd}		-	38	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=75A (note 4)	-	-	1.3	V
Diode Forward Current	I_S	TC=25℃	-	-	150	A
Reverse recovery time	T_{rr}	I_S=75A, di/dt=100A/μs	-	180		ns
Reverse recovery charge	Q_{rr}		-	1400		nC

Thermal Characteristics

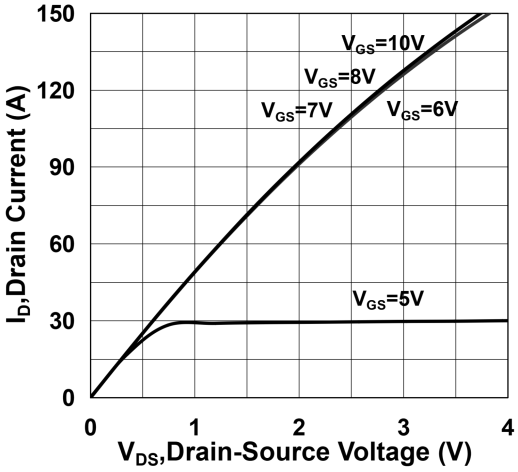
Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case	R_{th}(j-C)	0.25	℃/W
Thermal Resistance,junction to Ambient	R_{th}(j-A)	40	℃/W

Notes:

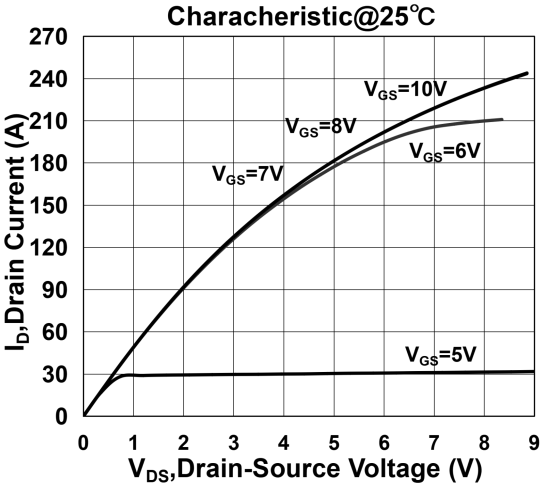
1. Repetitive Rating:Pulse width limited by maximum junction temperature
2. L=0.5mH,I_{AS}=I_{AR},V_{GS}=10V,V_{DD}=50V,R_G=25Ω,Limited by Tjmax,starting Tj=25℃
3. I_{SD}≤50A,di/dt=600A/us,V_{DD}≤BV_{DSS},Staring T_J≤150℃
4. Pulse Test：Pulse Width ≤400μs,Duty Cycle≤2%
5. Essentially independent of operating temperature

Electrical Characteristics

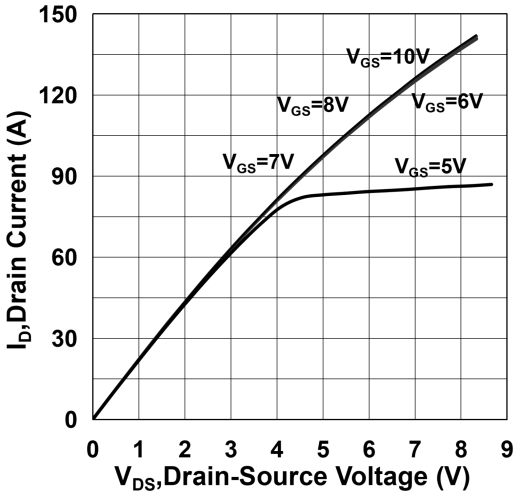
On-Region Characteristic@25℃



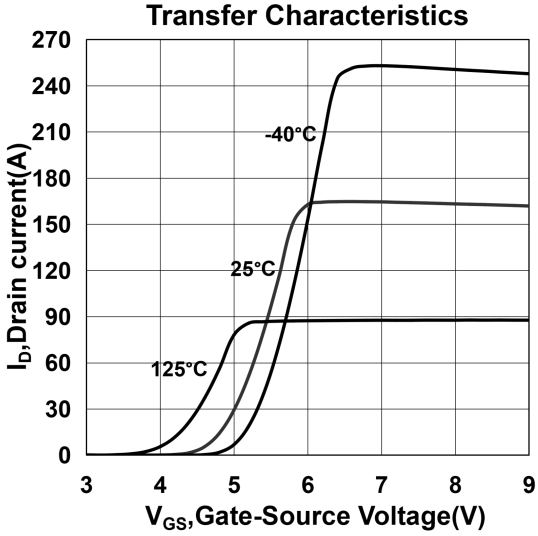
Extended On-Region Characheristic@25℃



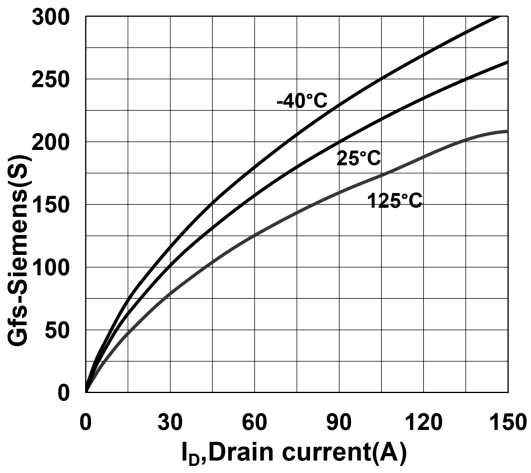
On-Region Characteristic@125℃



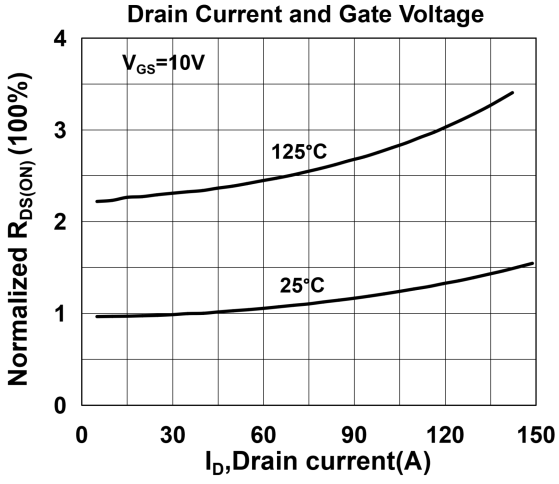
Transfer Characteristics



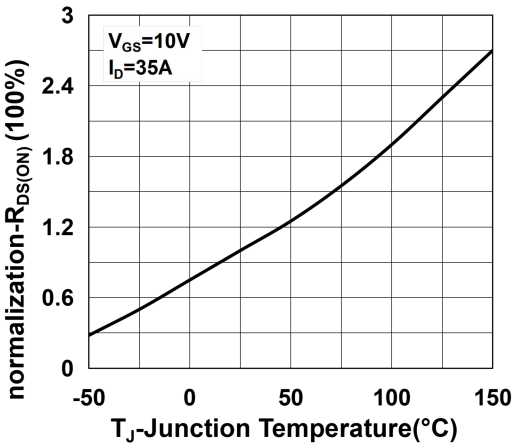
Transconductance



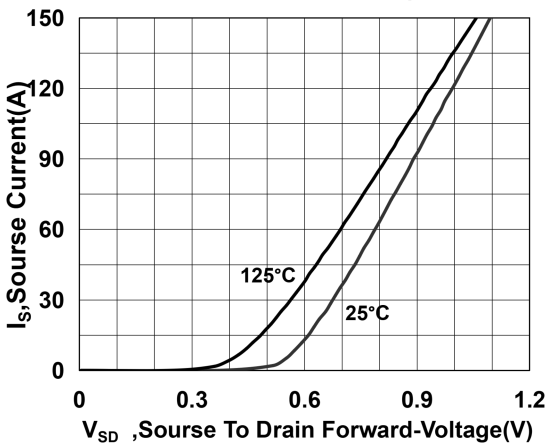
NormalizedOn-Resistance Variation vs Drain Current and Gate Voltage



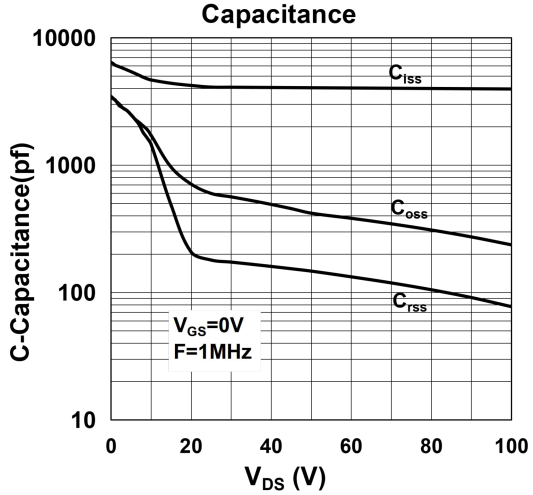
Normalization On-Resistance Variation vs Junction Temperature



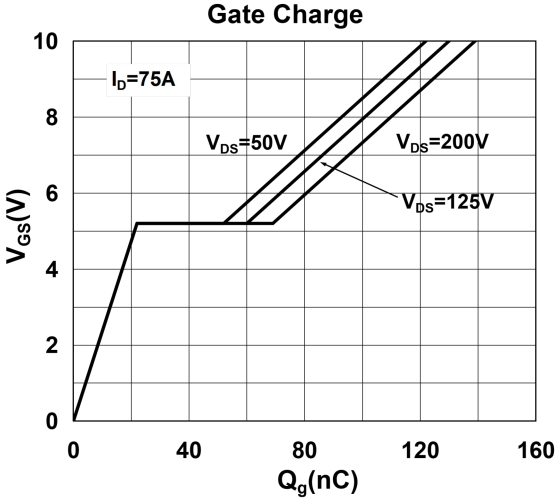
Body Diode Forward Voltage Variation with Sourse Current and Temperature



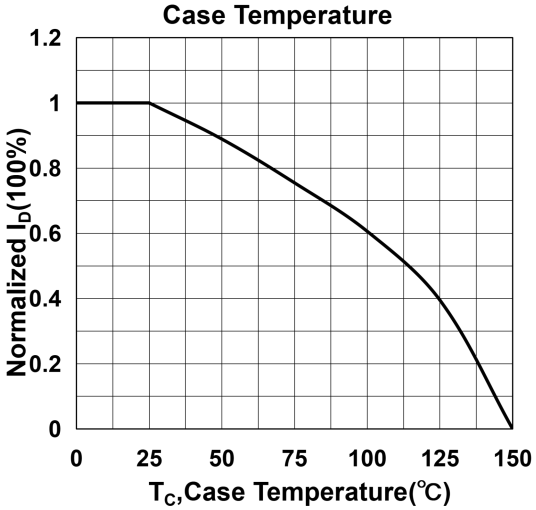
Capacitance



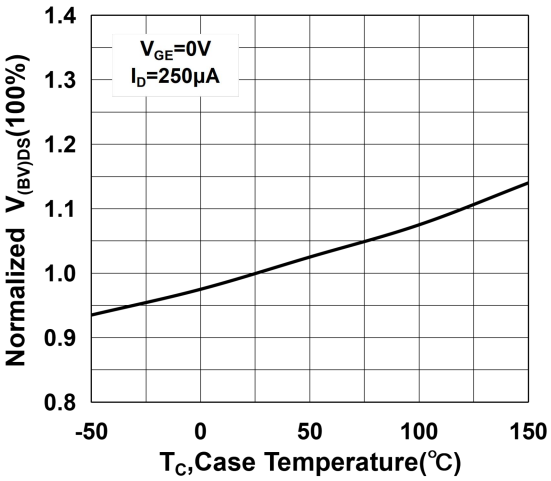
Gate Charge



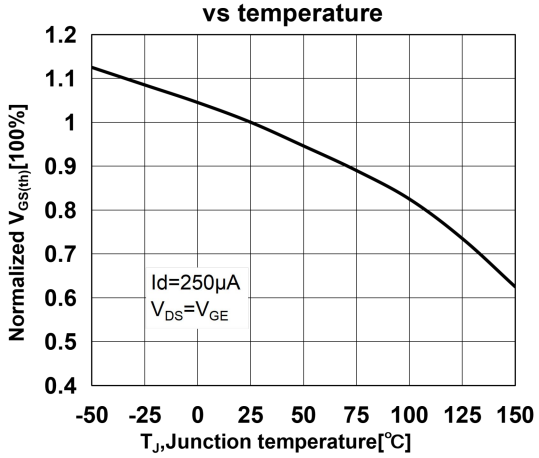
Maximum Drain Current vs Case Temperature



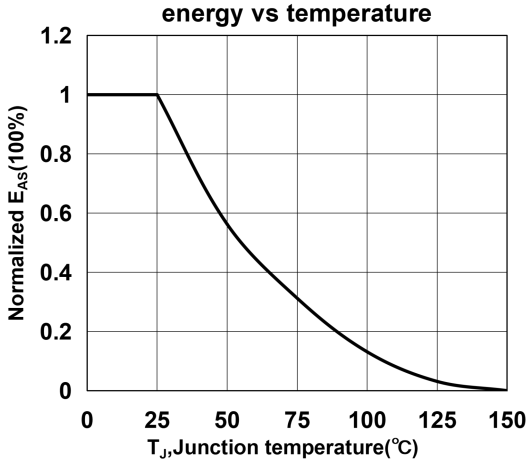
Normalized $V_{(BV)DS}$ vs temperature



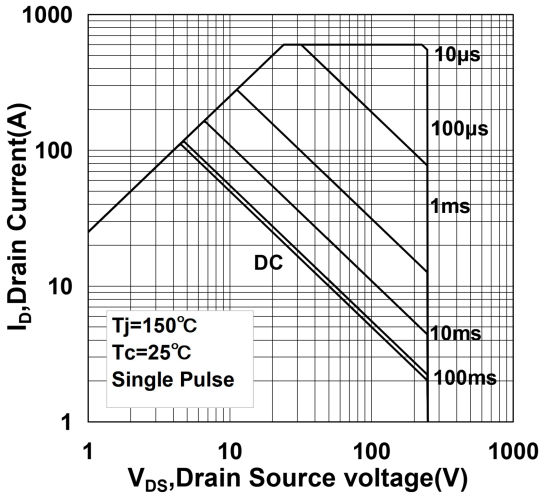
Normalized gate threshold voltage vs temperature



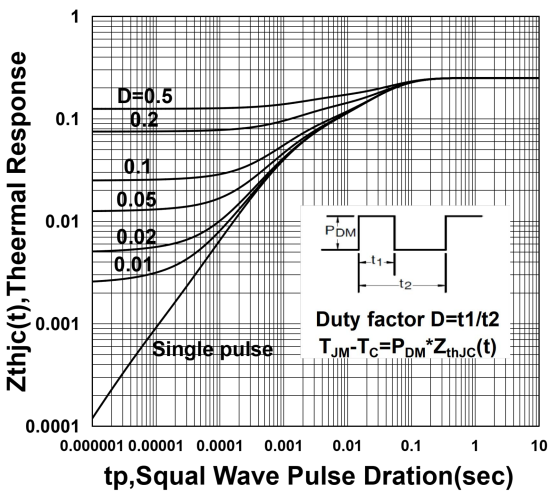
Normalized maximum avalanche energy vs temperature



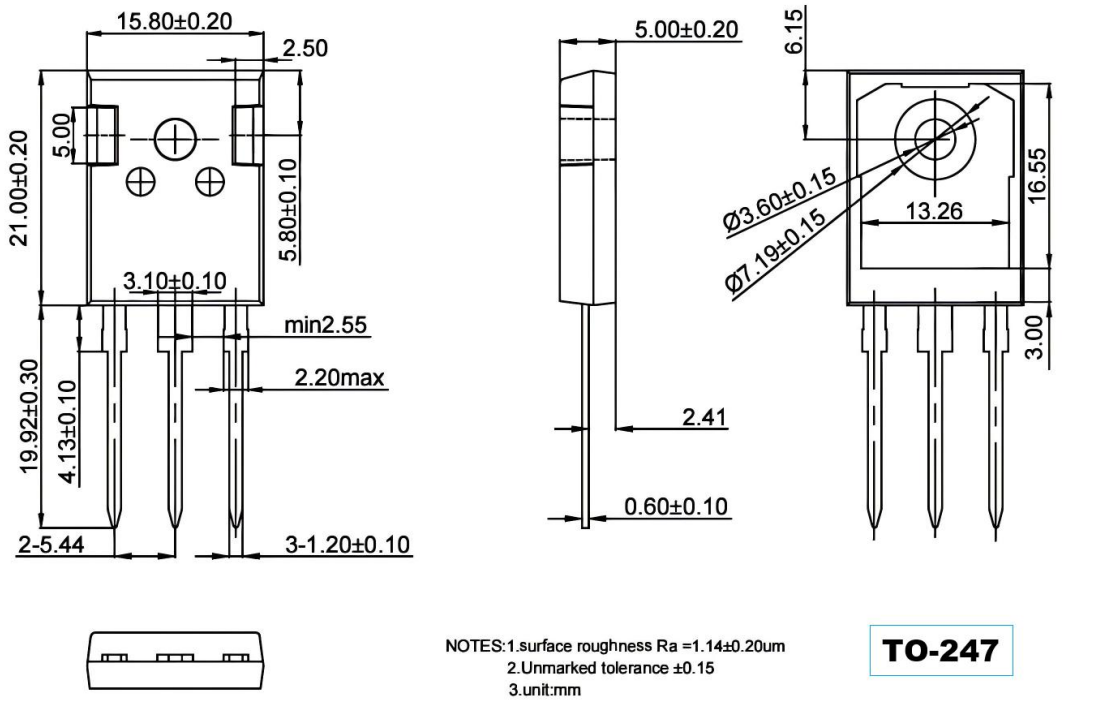
Safe Operating Area



Transient response Curve



Package Mechanical DATA



NOTES:1.surface roughness Ra =1.14±0.20um
2.Unmarked tolerance ±0.15
3.unit:mm

TO-247

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