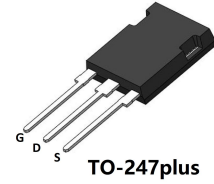


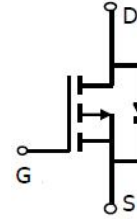
Features

- $V_{DS}=-200V, I_D=-120A$
 $R_{DS(on)}(typ.)=55m\Omega@-1A$
- 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°C)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	-200	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	-120	A
Drain Current-pulse(note1)	I_{DM}	-480	A
Repetitive Avalanche Current (note1)	I_{AR}	-35	A
Single Pulsed Avalanche Energy (note2)	E_{AS}	6125	mJ
Peak Diode Recovery dv/dt(note3)	dv/dt	10	V/ns
Maximum Power Dissipation	P_D	$T_C=25^\circ C$	W
		$T_C=100^\circ C$	
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$
Maximum lead temperature for soldering	T_L	300	

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

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

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-2.0	-3.0	-4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-1A$ (note4)	-	55	70	mΩ
Forward Trans conductance	g_{fs}	$V_{GS}=-10V, I_D=-60A$ (note4)	90	125		S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=-25V,$ $V_{GS}=0V,$ $f=1.0MHz$ (note5)	-	75	-	nF
Output capacitance	C_{oss}		-	2550	-	pF
Reverse transfer capacitance	C_{rss}		-	480	-	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	$t_{d(on)}$	$V_{DS}=-100V,$ $I_D=-60A,$ $V_{GS}=-10V$	-	88	-	ns
Turn-On rise time	t_r		-	82	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	192	-	ns
Turn-Off rise time	t_f		-	49	-	ns
Total Gate Charge	Q_g	$V_{DS}=-100V,$ $I_D=-60A,$ $V_{GS}=-10V$ (note5)	-	730	-	nC
Gate-Source charge	Q_{gs}		-	210	-	nC
Gate-Drain charge	Q_{gd}		-	138	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1A$ (note4)	-	-0.68	-1.2	V
Diode Forward Current	I_S	$T_C=25^{\circ}C$	-	-	-120	A
Reverse recovery time	T_{rr}	$I_S=-60A,$ $-di/dt=-100A/\mu s$	-	180	-	ns
Reverse recovery charge	Q_{rr}		-	1400	-	nC

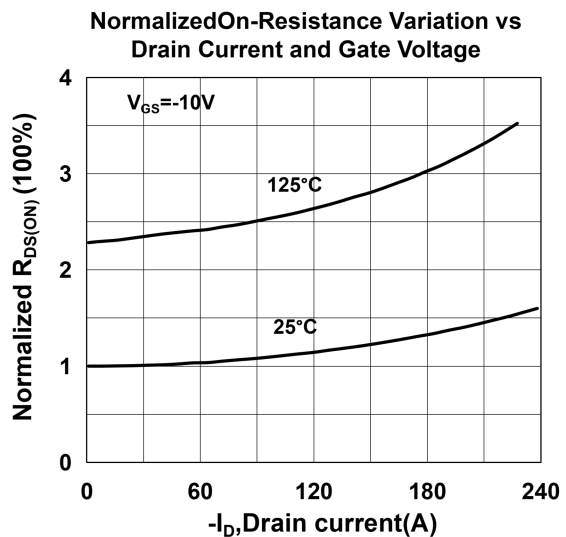
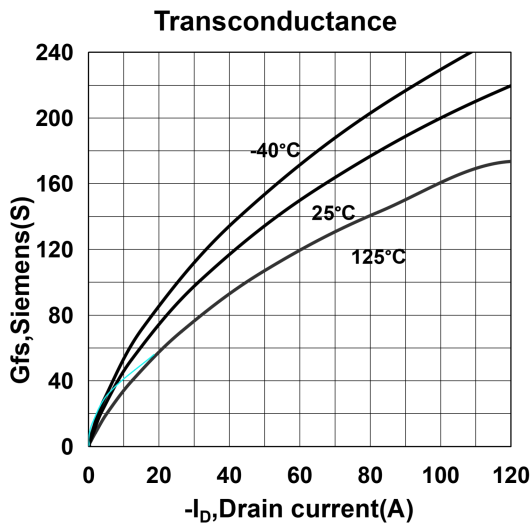
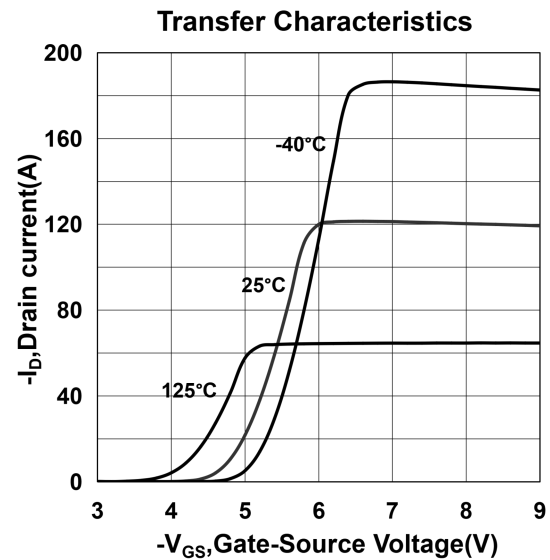
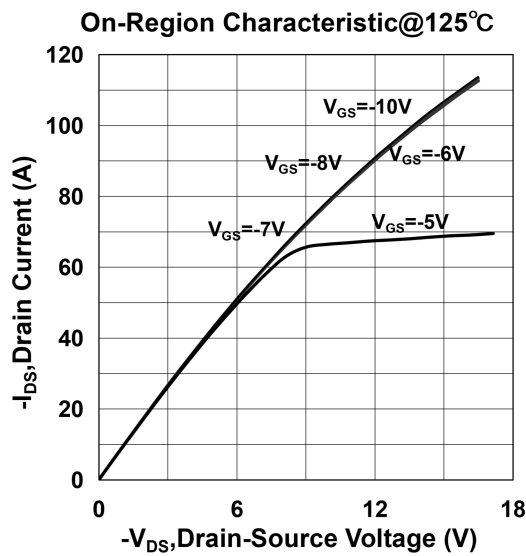
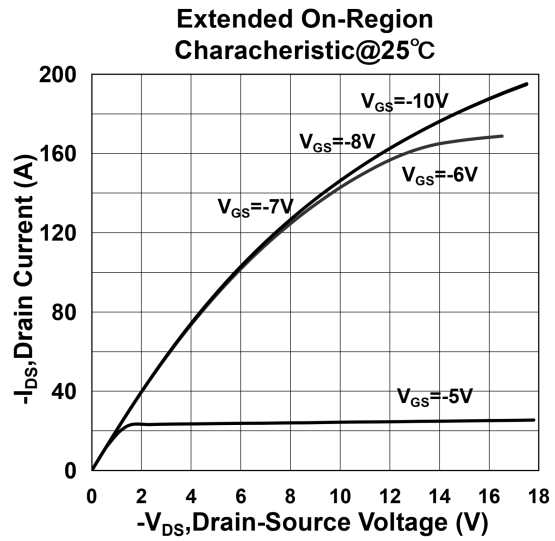
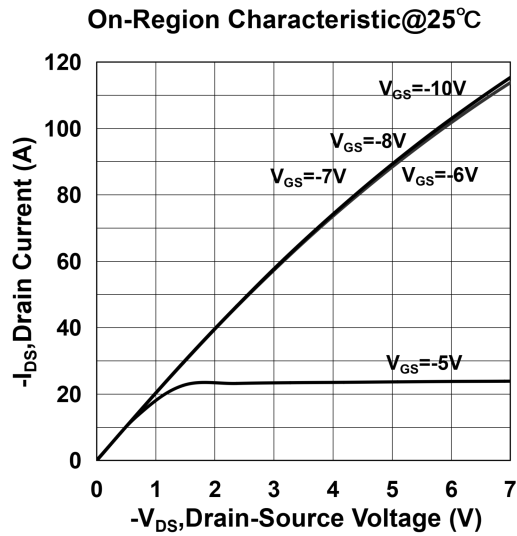
Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case,Max	$R_{th(J-C)}$	0.12	$^{\circ}C/W$
Thermal Resistance,junction to Ambient	$R_{th(J-A)}$	40	$^{\circ}C/W$

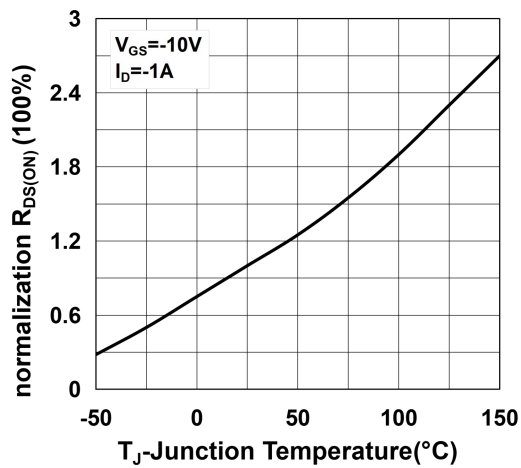
Notes:

1. Pulse width limited by maximum junction temperature
2. $L=10mH, I_{AS}=I_{AR}, V_{DD}=-50V, R_G=25\Omega$, Starting $T_J=25^{\circ}C$
3. $I_S=I_{DM}, V_{DD}\leq V_{DSS}, T_J\leq 150^{\circ}C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

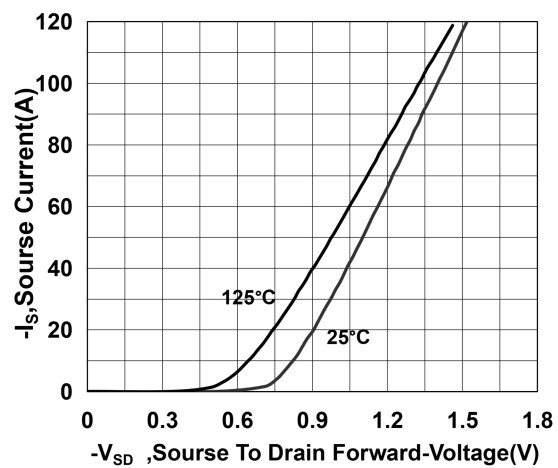
Electrical Characteristics



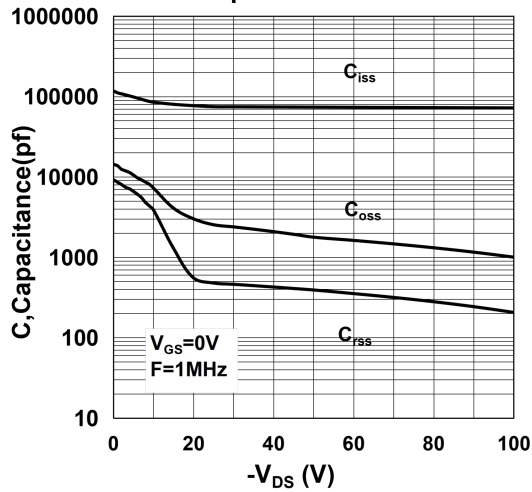
**Normalization On-Resistance
Variation vs Junction Temperature**



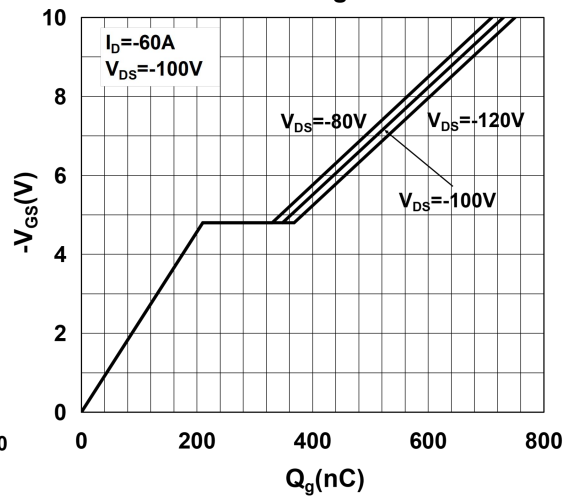
**Body Diode Forward Voltage Variation
with Source Current and Temperature**



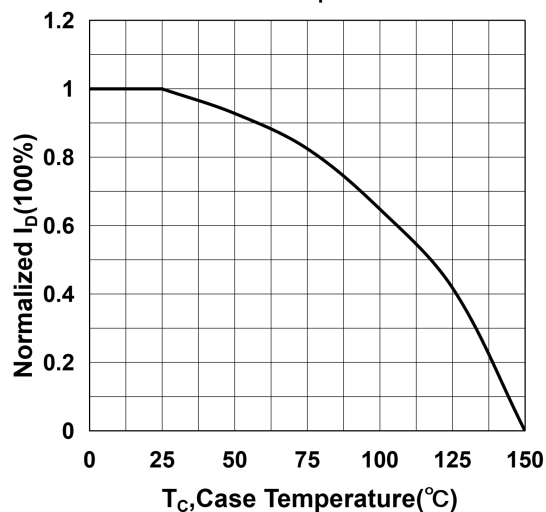
Capacitance



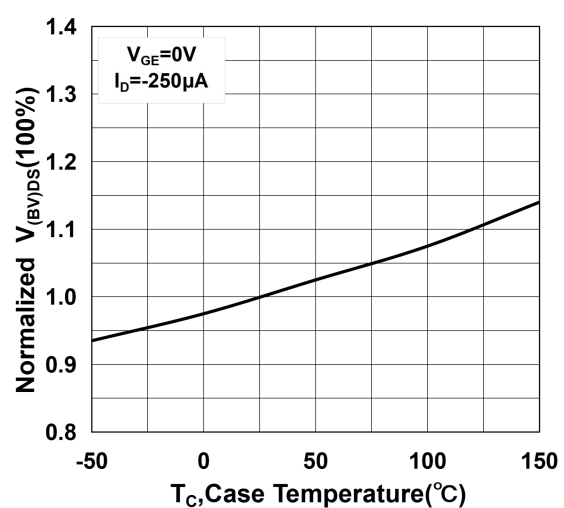
Gate Charge



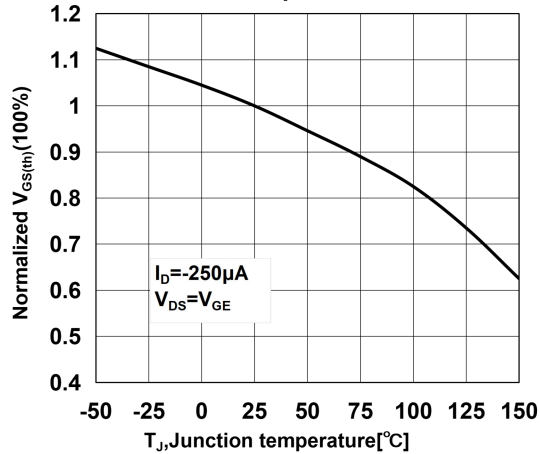
**Normalized Maximum Drain Current vs
Case Temperature**



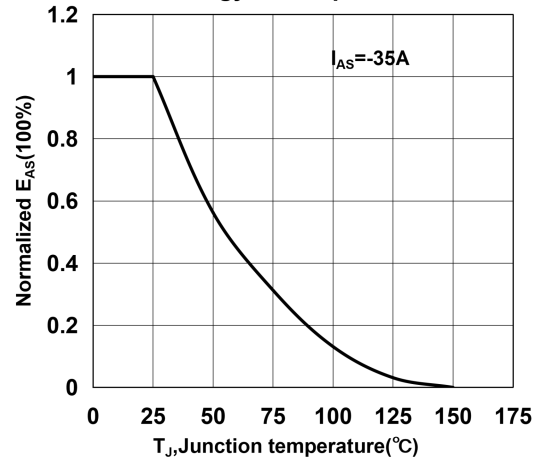
Normalized $V_{(BV)DS}$ vs temperature



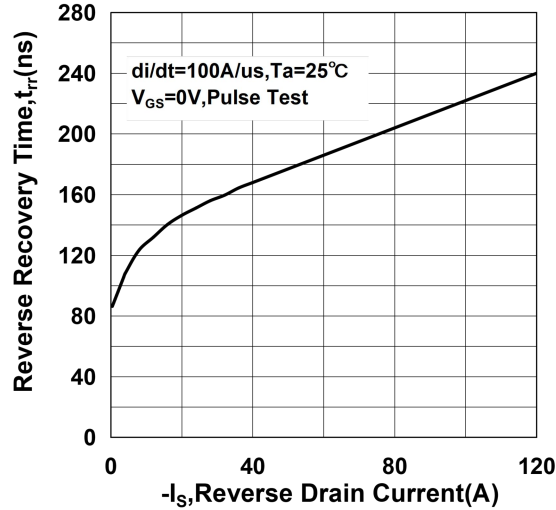
Normalized gate threshold voltage vs temperature



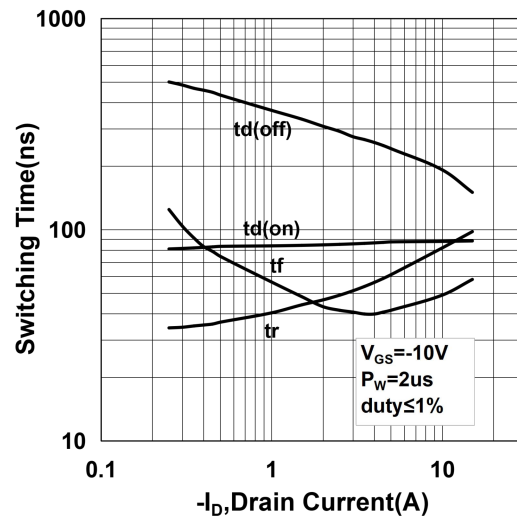
Normalized maximum avalanche energy vs temperature



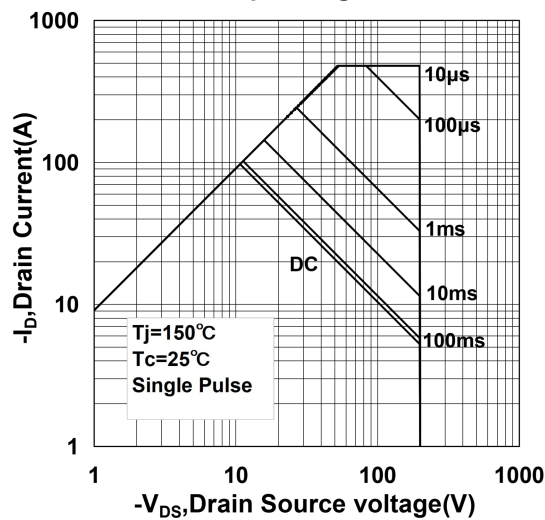
Body Diode Reverse Recovery Time vs Source to Drain Current



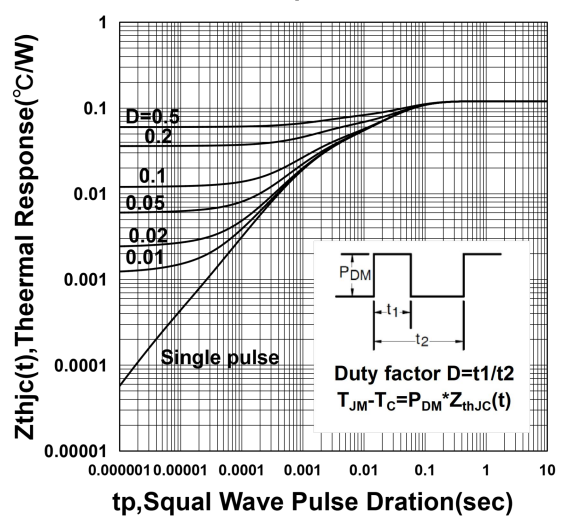
Switching Characteristics



Safe Operating Area



Transient response Curve



Package Mechanical DATA

