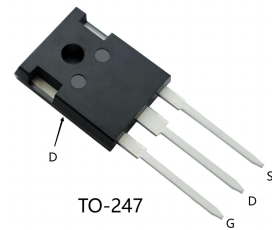


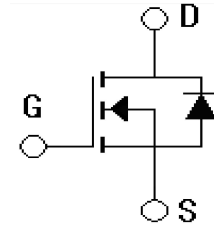
Features

- $V_{DS}=100V, I_D=290A$
- Low $R_{DS(on)}$
- Fast switching
- Low package inductance
- High current handling diode



Applications

- Secondary synchronous rectifier
- Load Switch
- LED backlighting
- Industrial power supplies



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

Parameter	Symbol		Limit	Unit
Drain-Source Voltage	V_{DSS}		100	V
Transient Gate-Source Voltage	V_{GSM}		± 30	V
Continuous Gate-Source Voltage	V_{GSS}		± 20	V
Drain Current-continuous (Silicon limited)	I_D	$T_C=25^\circ C$	290	A
		$T_C=100^\circ C$	200	
Drain Current-continuous (Package limited)	I_D	$T_C=25^\circ C$	195	A
Drain Current-pulse(note 1)	I_{DM} (Silicon limited)		1160	A
Drain Current-pulse(note 1)	I_{DM} (Package limited)		780	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}		1800	mJ
Maximum Power Dissipation	P_D	$T_C=25^\circ C$	431	W
		$T_C=100^\circ C$	172	
Peak Diode Recovery voltage slope(note 3)	dv/dt		10	V/ns
Operating and Storage Temperature Range	T_J, T_{STG}		$-55 \sim +150$	$^\circ C$
Maximum Lead Temperature for Soldering Purposes	T_L		300	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
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Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V, T_c=25^\circ C$	-	-	1	μA
		$T_c=125^\circ C$	-	-	100	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 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	$R_{DS(ON)}$	$V_{GS}=10V, I_D=50A$ (note 4)	-	2.0	2.6	m Ω
Forward Trans-conductance	g_{fs}	$V_{DS}=50V, I_D=50A$ (note 4)	-	145	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$ (note4,5)	-	15872	-	pF
Output capacitance	C_{oss}		-	5348	-	pF
Reverse transfer capacitance	C_{rss}		-	524	-	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} =50V,I _D =180A, V _{GS} =10V,R _G =2Ω	-	34	-	ns
Turn-On rise time	t _r		-	80	-	ns
Turn-Off delay time	t _{d(Off)}		-	82	-	ns
Turn-Off rise time	t _f		-	39	-	ns
Total Gate Charge	Q _g	V _{DS} =50V,I _D =180A, V _{GS} =10V (note4,5)	-	354	-	nC
Gate-Source charge	Q _{gs}		-	79	-	nC
Gate-Drain charge	Q _{gd}		-	85	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =10A (note 4)	-	0.76	1.1	V
Continuous Forward Current	I _S		-	-	290	A
Pulse Source Current	I _{SM}		-	-	1160	A
Reverse recovery time	T _{rr}	I _S =50A, dI/dt=100A/μs V _R =800V	-	79	-	ns
Reverse recovery charge	Q _{rr}		-	205	-	nC
Reverse recovery Current	I _{RRM}		-	4.9	-	A

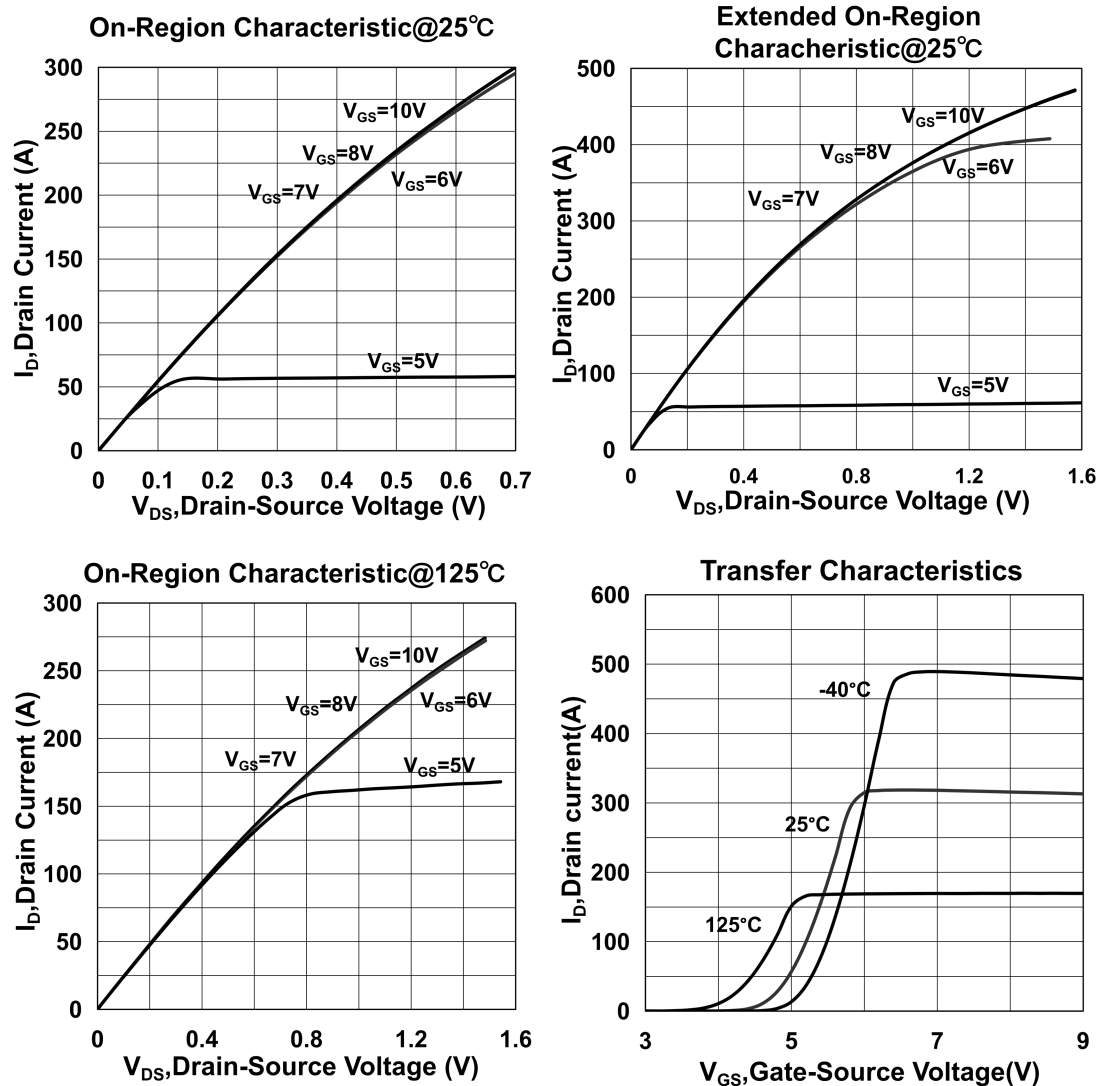
Thermal Characteristic

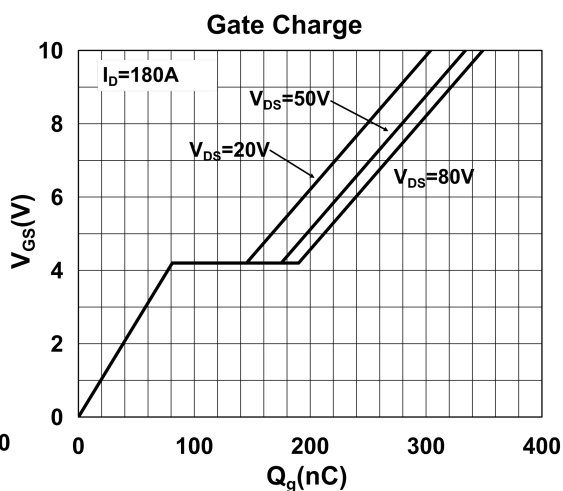
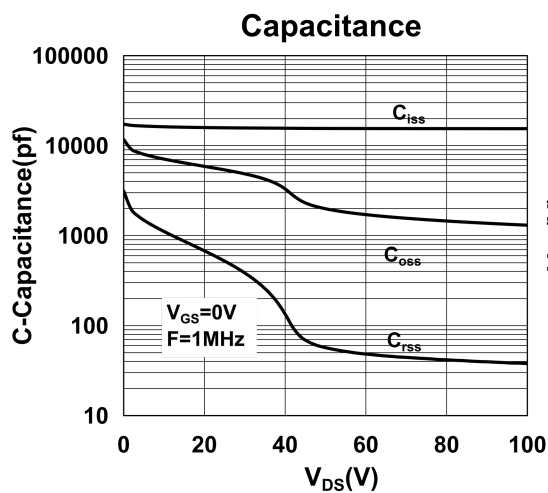
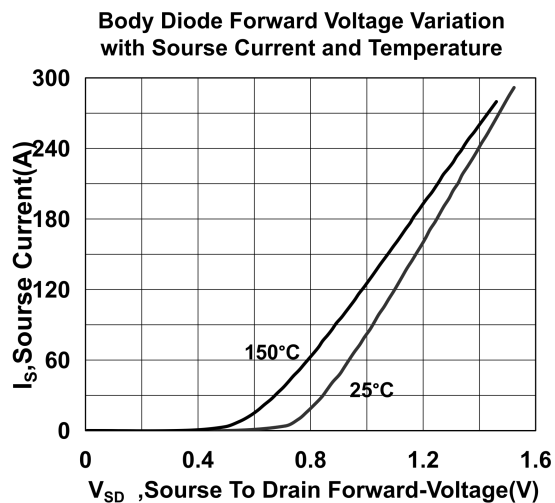
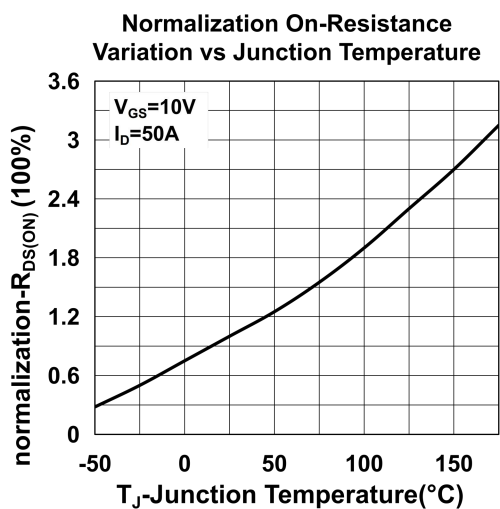
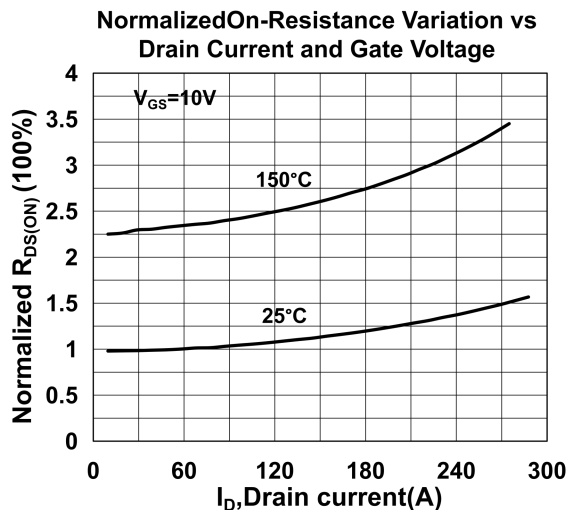
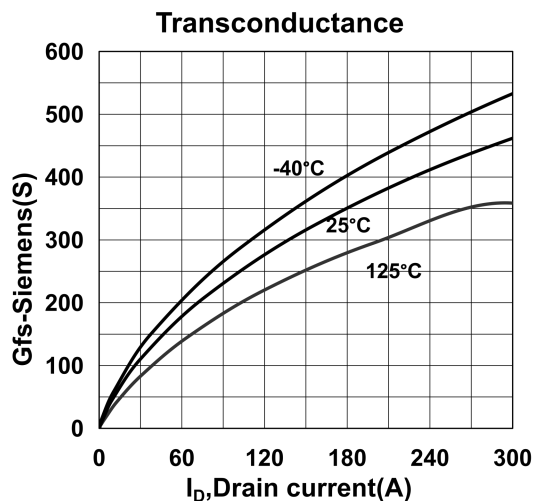
Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case,Max	$R_{th(j-C)}$	0.29	$^{\circ}C/W$
Thermal Resistance,junction to Ambient,Max	$R_{th(j-A)}$	40	$^{\circ}C/W$

Notes:

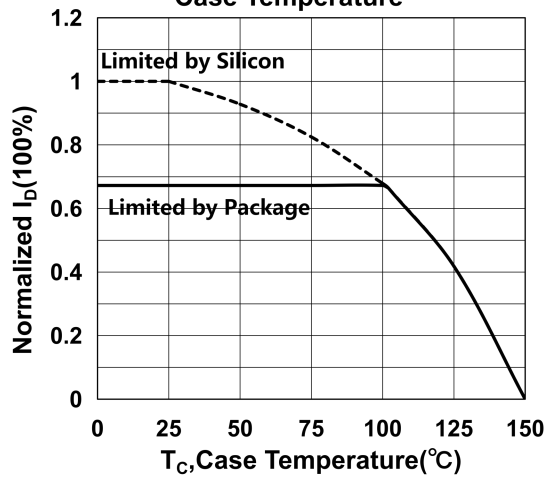
1. Pulse width limited by maximum junction temperature
2. $L=0.5mH$, $I_{AS}=60A$, $V_{DD}=50V$, $R_G=25\ \Omega$, Starting $T_J=25^{\circ}C$
3. $I_{SD}\leq 180A$, $di/dt\leq 600A/\mu s$, $V_{DD}\leq BV_{DSS}$, Starting $T_J<175^{\circ}C$
4. Pulse Test: Pulse Width $\leq 400\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

Electrical Characteristics

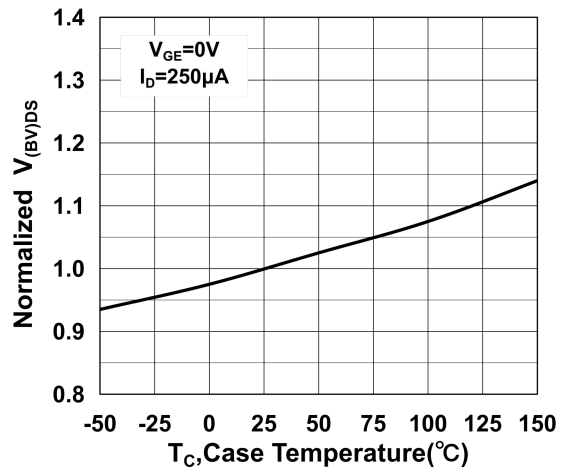




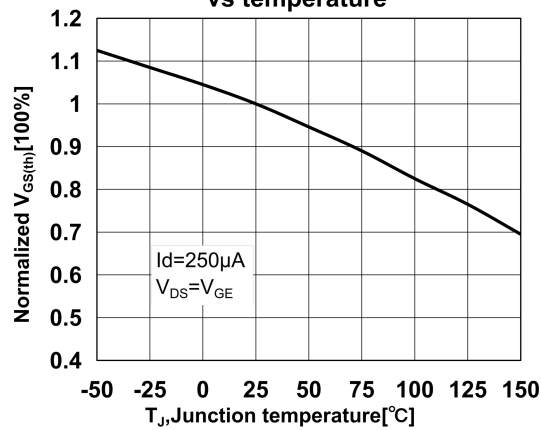
Maximum Drain Current vs Case Temperature



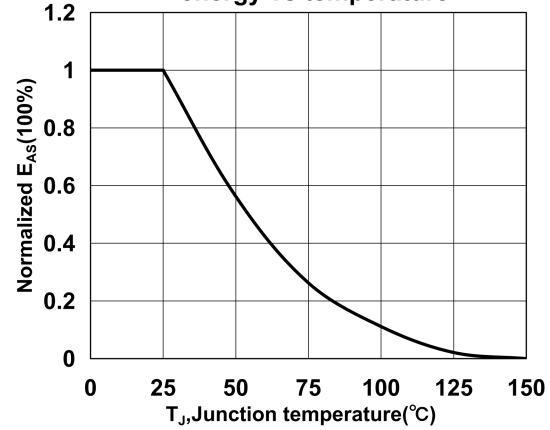
Normalized $V_{(BV)DS}$ vs temperature



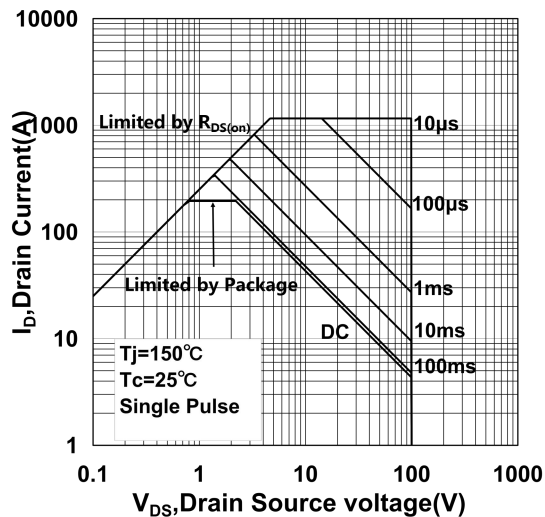
Normalized gate threshold voltage vs temperature



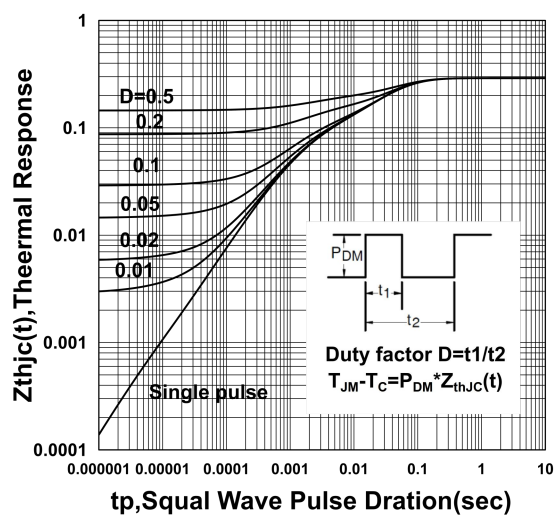
Normalized maximum avalanche energy vs temperature



Safe Operating Area



Transient response Curve



Package Mechanical Data

