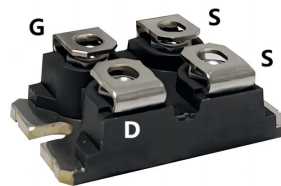


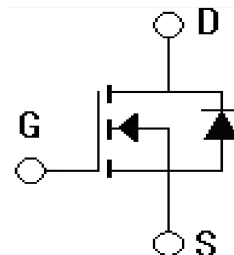
Features

- $V_{DS}=500V, I_D=65A$
 $R_{DS(on)} \leq 100m\Omega @ V_{GS}=10V$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device
- performance and reliable operation



Applications

- ZVS phase shifted and other full bridge
- Half bridge
- PFC and other boost converter
- Buck converter
- Single and two switch forward
- Flyback



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	500	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	$T_C=25^\circ C$	A
		$T_C=100^\circ C$	
Drain Current-pulse(note 1)	I_{DM}	195	A
Single Pulsed Avalanche Energy(note 2)	E_{AS}	2500	mJ
Avalanche Current, Repetitive or Non-Repetitive	I_{AR}	28	A
Maximum Power Dissipation	P_D	694	W
Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ C$
Maximum lead temperature for soldering plastic body for 10s	T_L	300	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=1mA, V_{GS}=0V$	500	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	50	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 =1mA	3.5	-	5.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =25A (note 3)	-	80	100	mΩ
Forward Transconductance	g _{fs}	V _{DS} =50V, I _D =25A (note 3)	16	-	-	S
Dynamic Characteristics						
Input capacitance	C _{iSS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	-	7.9	nF
Output capacitance	C _{oSS}		-	-	1.4	nF
Reverse transfer capacitance	C _{rSS}		-	-	230	pF
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =200V, I _D =25A, R _g =1.0Ω, V _{GS} =15V (note 4)	-	-	36	ns
Turn-On rise time	t _r		-	-	65	ns
Turn-Off delay time	t _{d(Off)}		-	-	110	ns
Turn-Off rise time	t _f		-	-	50	ns
Total Gate Charge	Q _g	V _{DS} =200V, I _D =25A, V _{GS} =10V	-	-	470	nC
Gate-Source charge	Q _{gs}		-	-	75	nC
Gate-Drain charge	Q _{gd}		-	-	190	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =25A	-	-	1.5	V
Diode Forward Current	I _S	T _C =25℃	-	-	65	A
Reverse recovery time	T _{rr}	I _S =65A, di/dt=100A/μs	-	500	-	ns
Reverse recovery charge	Q _{rr}	V _R =100V, V _{GS} =0V	-	3.2	-	μC
Reverse recovery current	I _{rr}	(note 3)	-	8.5		A

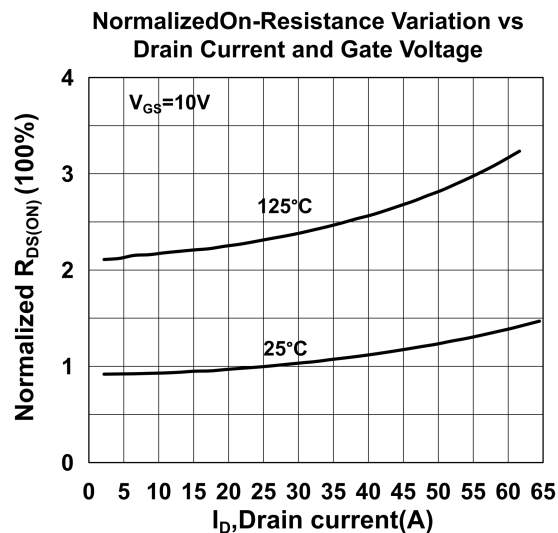
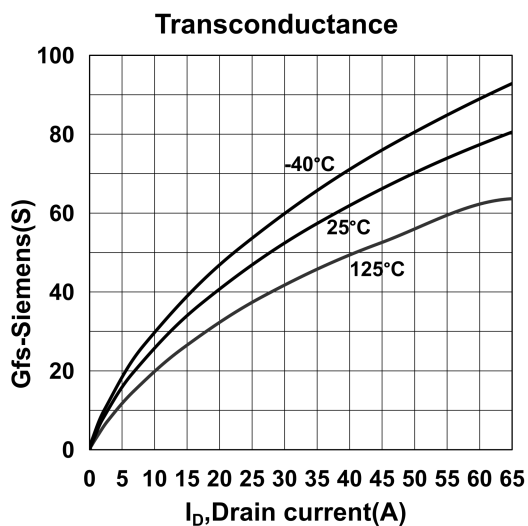
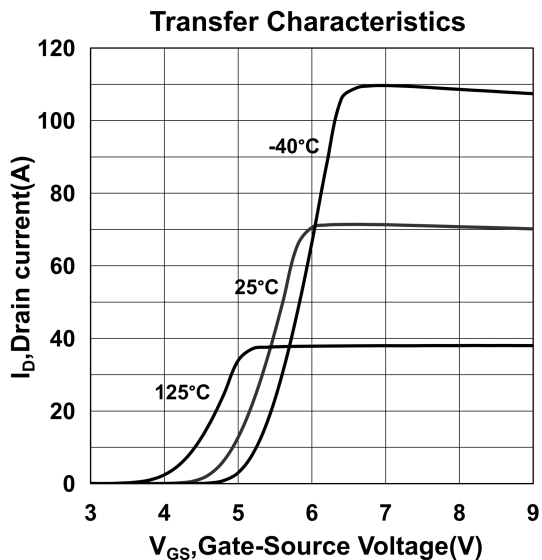
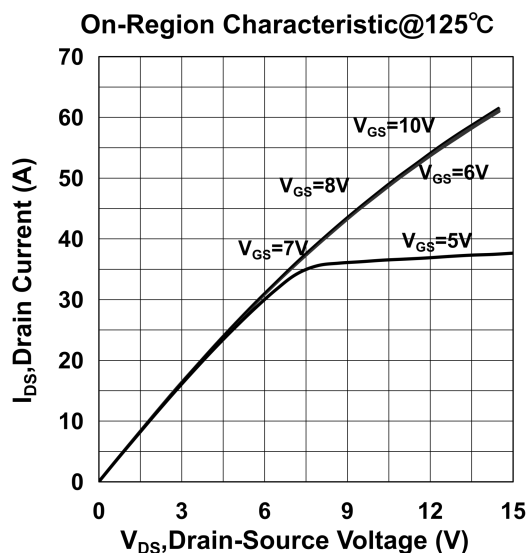
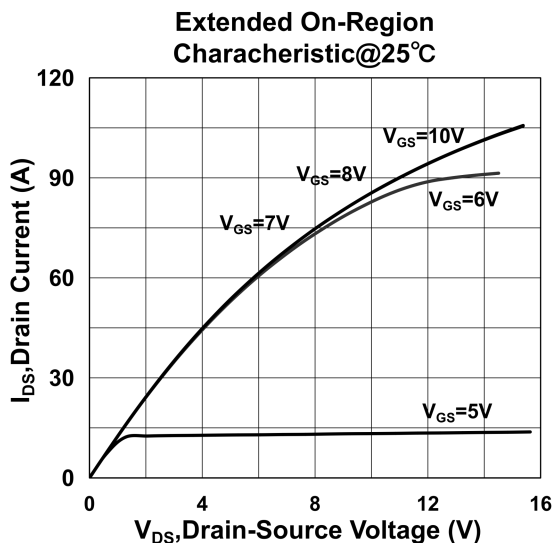
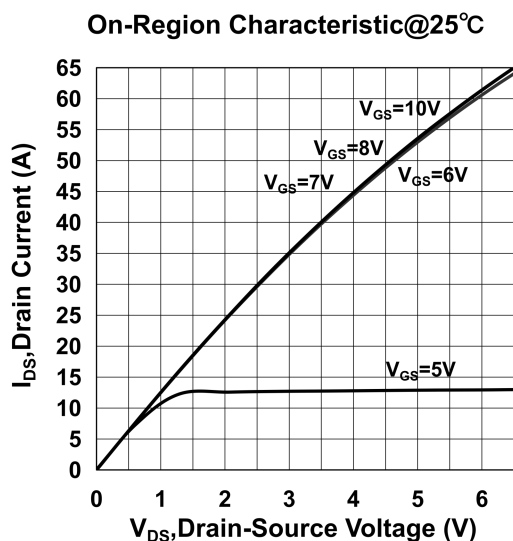
Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case, Max	$R_{th(j-c)}$	0.18	$^\circ C/W$
Thermal Resistance, Junction to Ambient, Max	$R_{th(j-a)}$	40	

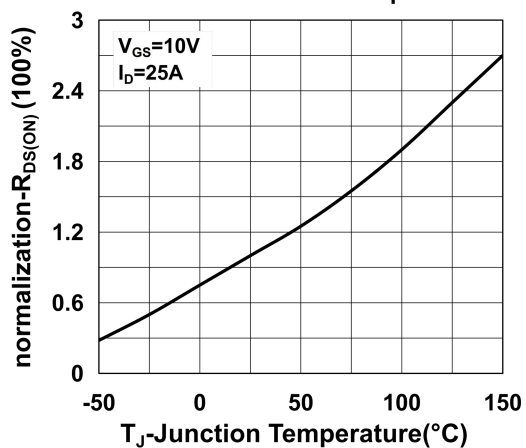
Notes:

1. Repetitive Rating: Pulse width and case temperature limited by maximum junction temperature.
2. Starting at $T_J = 25^\circ C$, $L = 2.0mH$, $R_G = 25\Omega$, $I_{AS} = 50A$.
3. Pulse test: Pulse Width $< 300\mu s$, duty cycle $< 2\%$
4. R_G is external gate resistance, not including internal gate resistance or gate driver impedance.

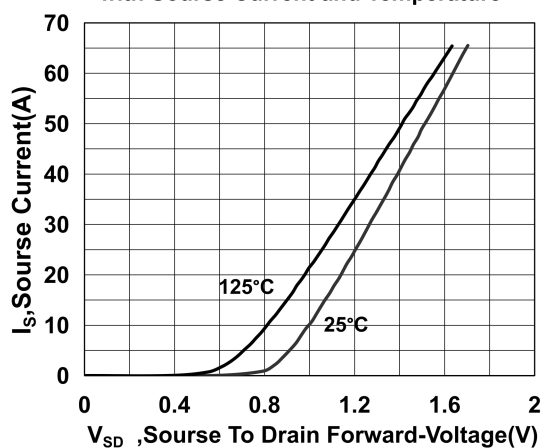
Electrical Characteristics



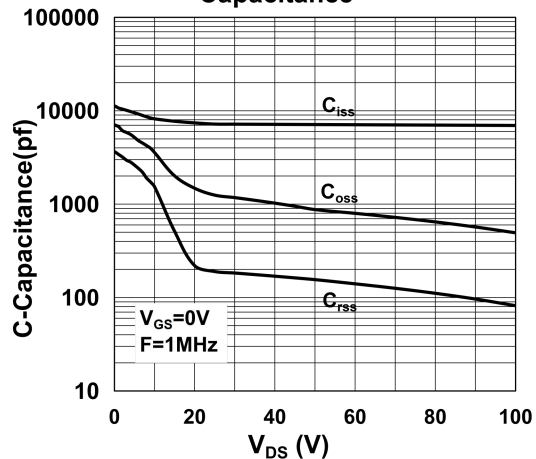
**Normalization On-Resistance
Variation vs Junction Temperature**



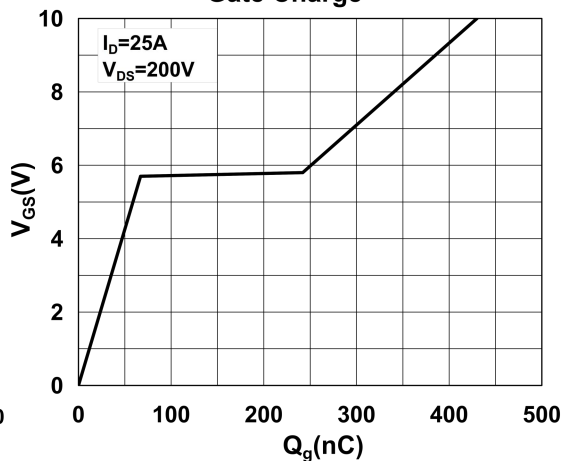
**Body Diode Forward Voltage Variation
with Source Current and Temperature**



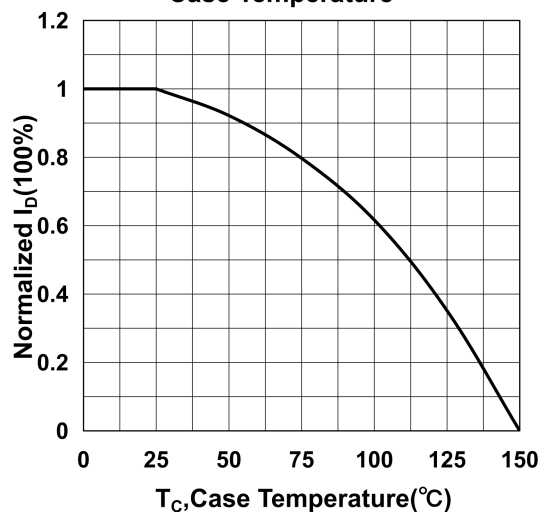
Capacitance



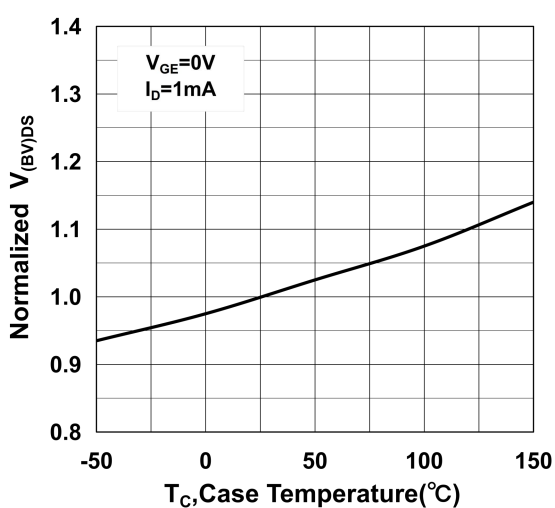
Gate Charge



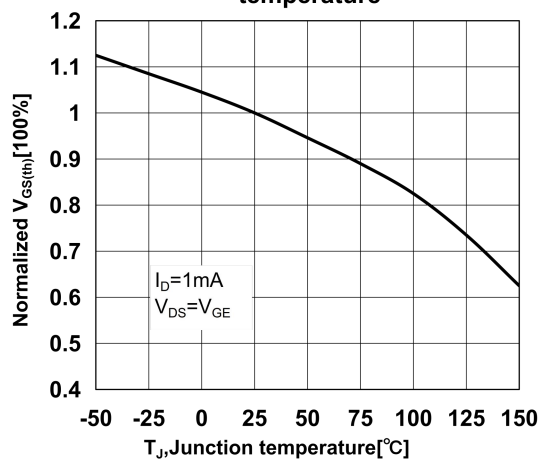
**Maximum Drain Current vs
Case Temperature**



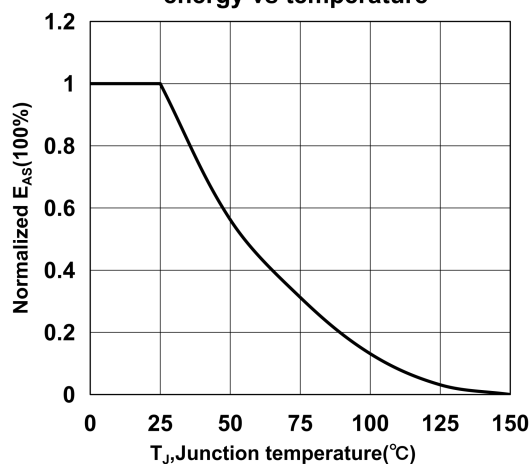
Normalized $V_{(BV)DS}$ vs temperature



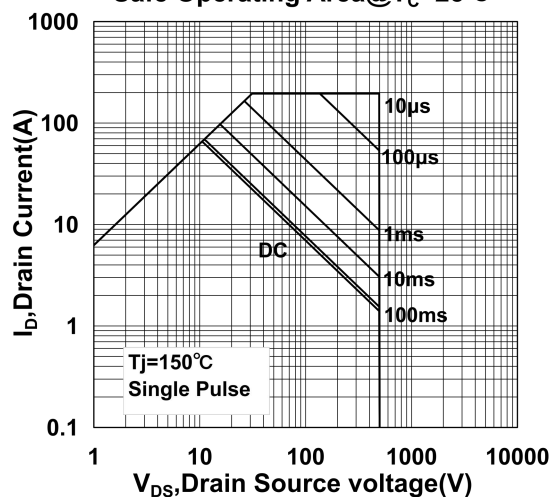
Normalized gate threshold voltage vs temperature



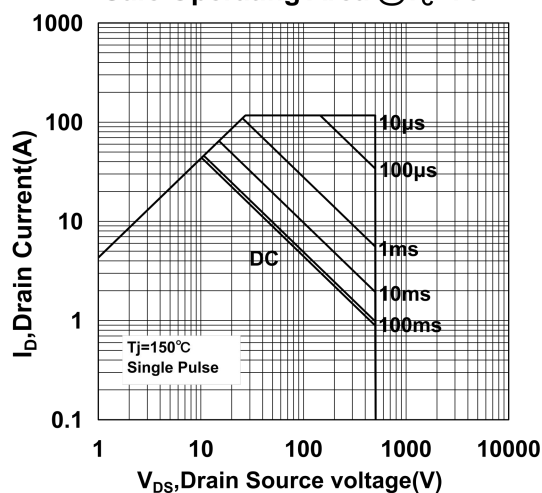
Normalized maximum avalanche energy vs temperature



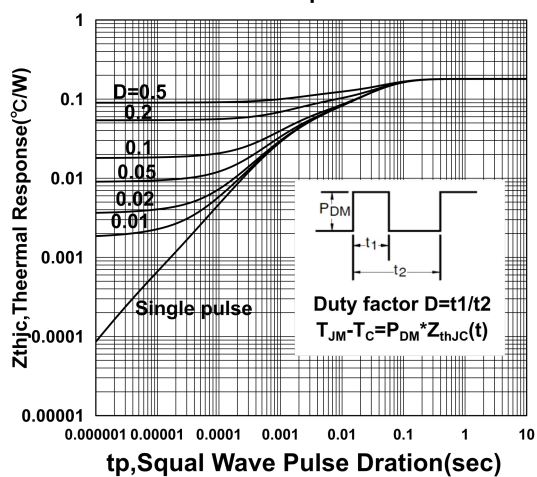
Safe Operating Area @ $T_c=25^{\circ}C$



Safe Operating Area @ $T_c=70^{\circ}C$



Transient response Curve



Package Mechanical DATA

