

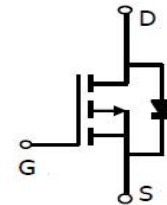
Features

- $V_{DS}=-500V, I_D=-5A, R_{DS(on)}<4.9\Omega$ @ $V_{GS}=-10V$
- Low gate charge (typical 15 nC)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



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	-5	A
	$I_D(T_C=100^\circ C)$	-3	A
Drain Current-pulse (note 1)	I_{DM}	-20	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}	500	mJ
Peak diode recovery dv/dt(note 3)	dvdt	-4.5	V/ns
Maximum Power Dissipation	$P_D, T_C=25^\circ C$ Derate above $25^\circ C$	50	W
		0.4	W/ $^\circ C$
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$
Maximum Lead Temperature for Soldering Purpose	T_L	300	$^\circ C$

Electrical Characteristics($T_C=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=-250\mu A, V_{GS}=0V$	-500	-	-	V
Breakdown Voltage	ΔBV_{DSS}	$I_D = -250 \mu A,$	-	0.42	-	V/ $^\circ C$

Temperature Coefficient	/ ΔT _J	Referenced to 25°C				
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-500V, V _{GS} =0V	-	-	-1	μA
		V _{DS} =-400V, TC=125°C	-	-	-10	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	-2.6	-3.6	-4.6	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-1A (note 4)	-	4.0	4.9	Ω
Forward Trans-conductance	g _{fs}	V _{DS} =-50V, I _D =-2.5A (note 4)	-	4.8	-	S
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1.0MHz (note 5)	-	490	-	pF
Output capacitance	C _{oss}		-	64	-	pF
Reverse transfer capacitance	C _{rss}		-	10	-	pF
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DD} =-250V, I _D =-5A, R _G =25Ω V _{GS} =-10V	-	18	-	ns
Turn-On rise time	t _r		-	49	-	ns
Turn-Off delay time	t _{d(Off)}		-	36	-	ns
Turn-Off rise time	t _f		-	41	-	ns
Total Gate Charge	Q _g	V _{DS} =-100V, I _D =-5A, V _{GS} =-10V (note 5)	-	15	-	nC
Gate-Source charge	Q _{gs}		-	3.2	-	nC
Gate-Drain charge	Q _{gd}		-	8.6	-	nC
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1A (note 4)	-	-0.78	-1.2	V
Diode Forward Current	I _S		-	-	-5	A
Reverse recovery time	t _{rr}	V _{GS} =0V, I _S =-5A V _{SD} =-100V -di _F /dt=100A/μs	-	240	-	ns
Reverse recovery charge	Q _{rr}		-	1.6	-	μC
Reverse recovery Current	I _{RM}		-	-2.6	-	A

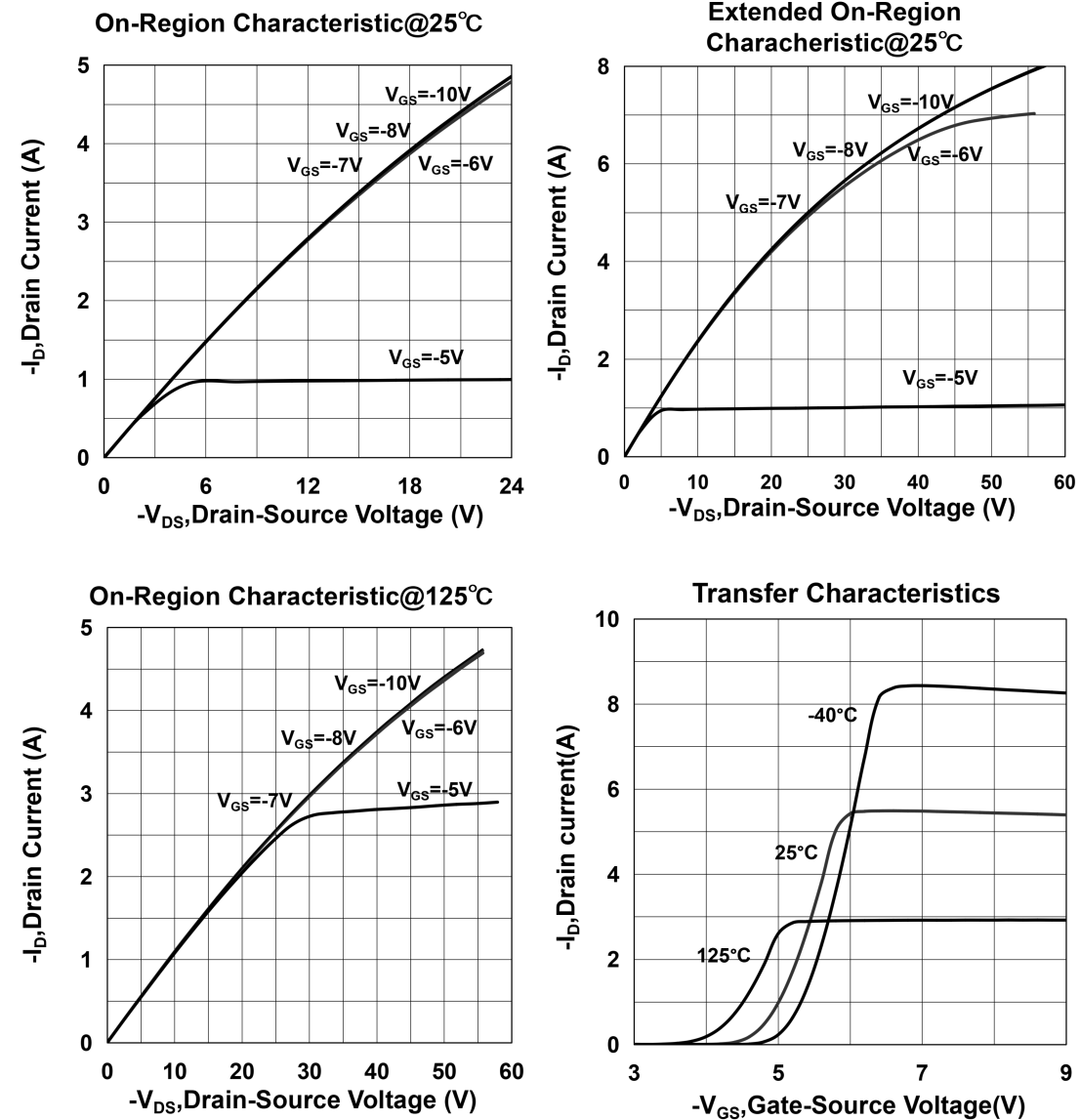
Thermal Characteristics

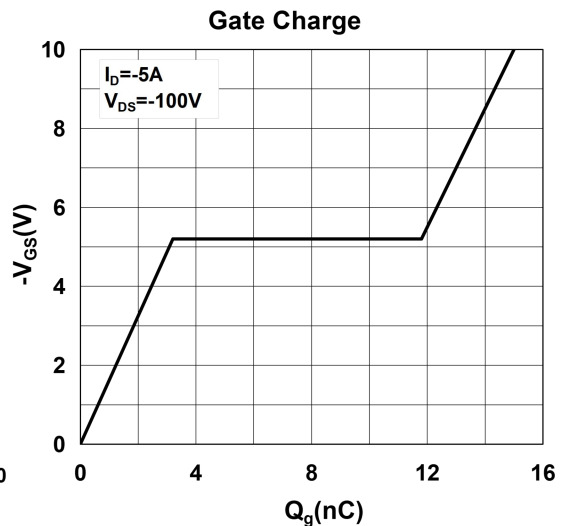
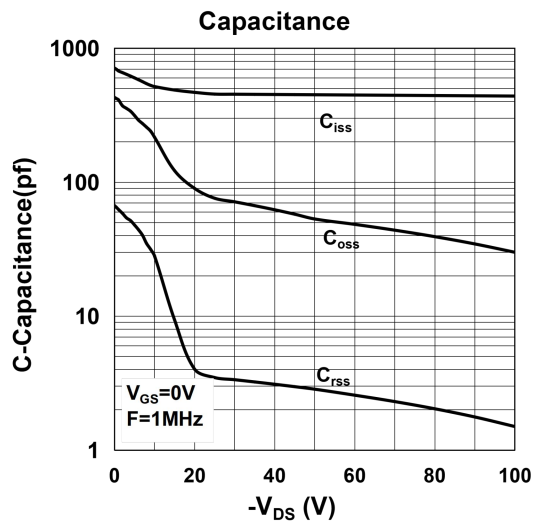
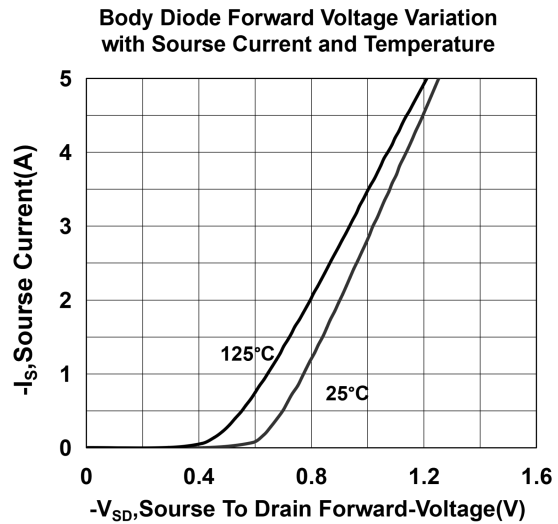
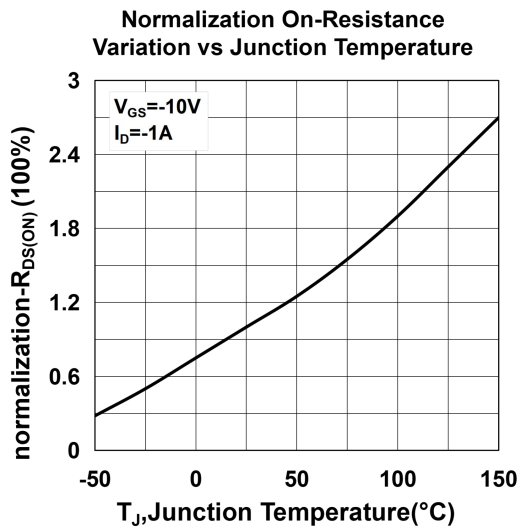
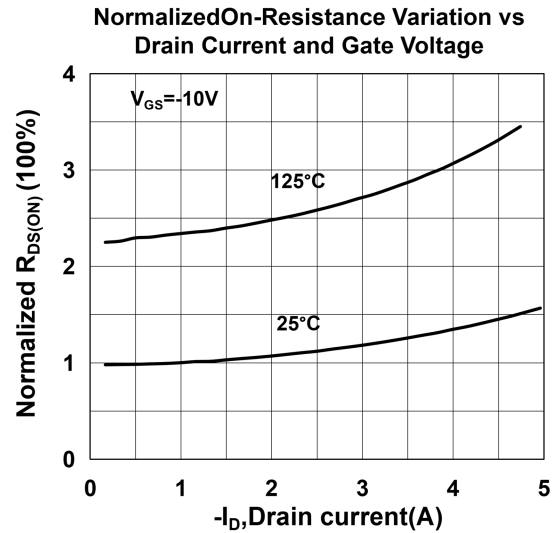
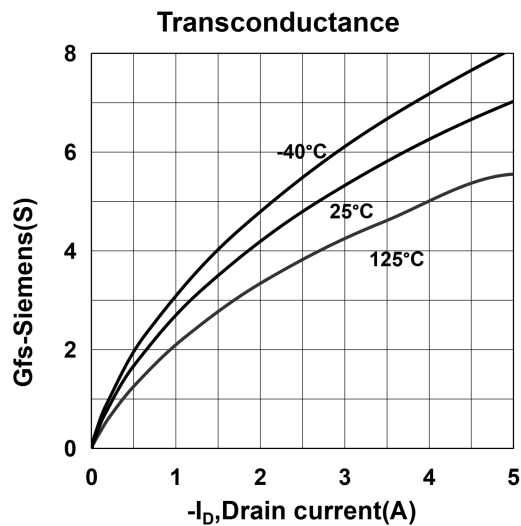
Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case,Max	$R_{th(J-C)}$	2.5	$^{\circ}C/W$
Thermal Resistance,junction to Ambient,Max	$R_{th(J-A)}$	40	$^{\circ}C/W$

Notes:

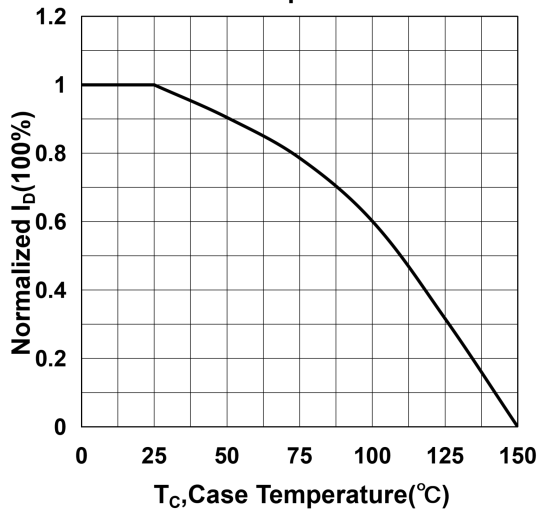
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS condition: $T_J=25^{\circ}C$, $V_{DD}=-25V$, $V_{GS}=-10V$, $L=20mH$, $I_{AR}=-5A$, $R_g=25\Omega$
3. $I_{SD}\leq -5A$, $di/dt\leq 200A/\mu s$, $V_{DD}\leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
5. Guaranteed by design, not subject to production

Typical characteristic curves

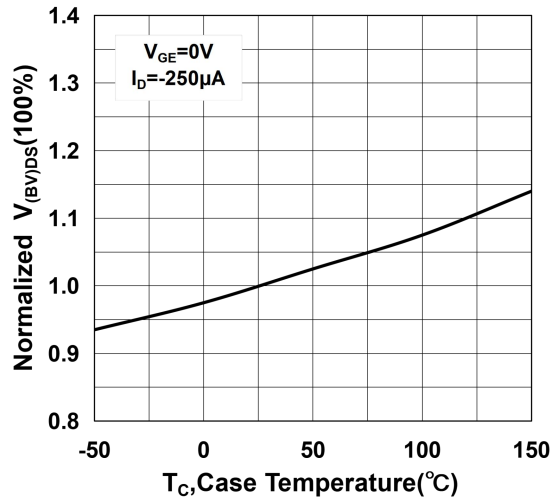




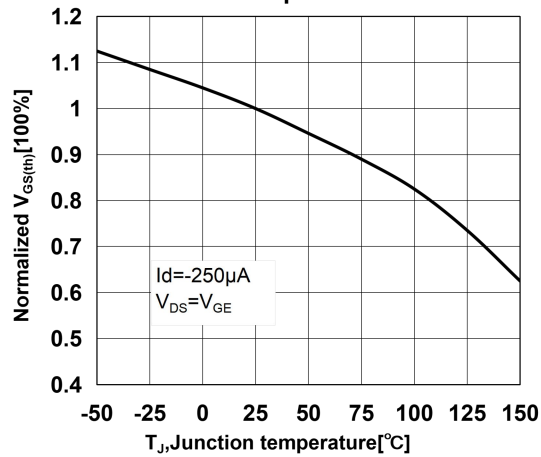
Maximum Drain Current vs Case Temperature



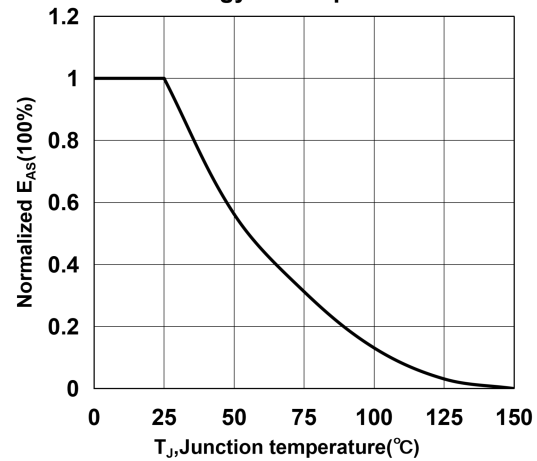
Normalized $V_{(BV)DS}$ vs temperature



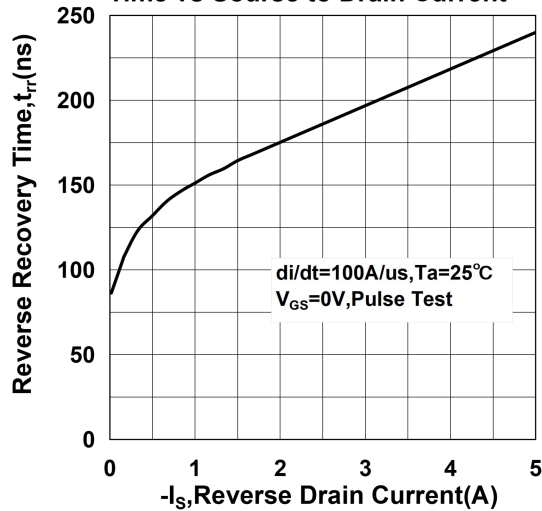
Normalized gate threshold voltage vs temperature



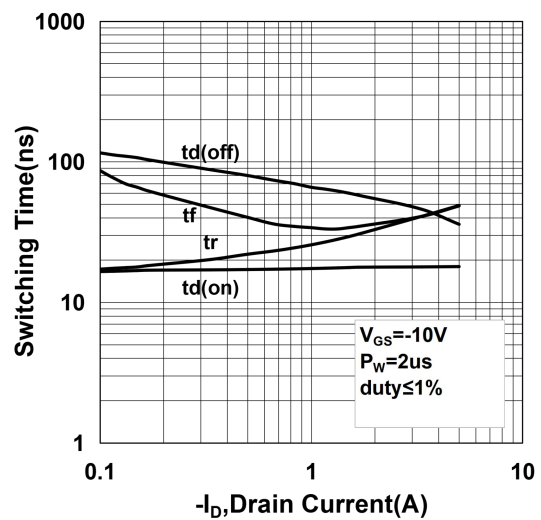
Normalized maximum avalanche energy vs temperature

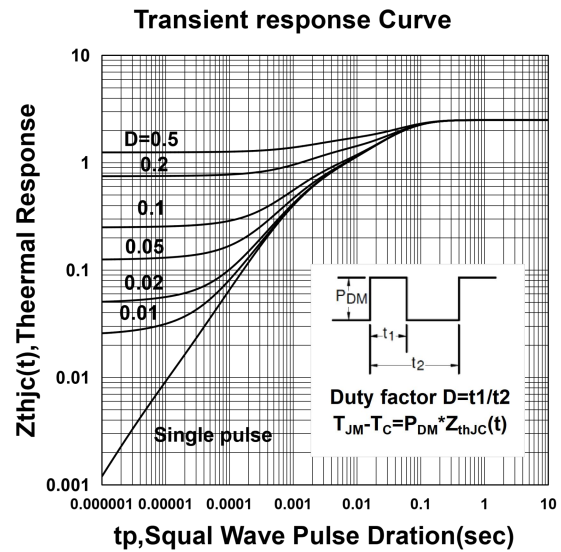
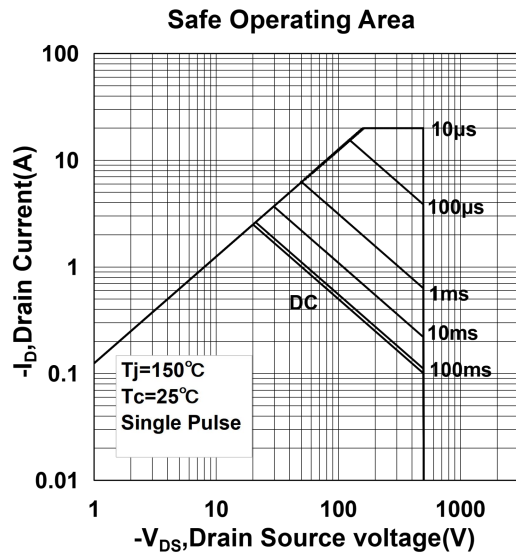


Body Diode Reverse Recovery Time vs Source to Drain Current



Switching Characteristics





Package Mechanical DATA

