

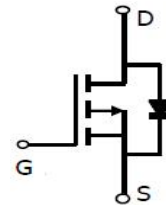
Features

- $V_{DS}=-200V, I_D=-11A$
 $R_{DS(on), Type}=460m\Omega @ V_{GS}=-10V$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation



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}		-200	V
Transient Gate-Source Voltage	V_{GSM}		± 30	V
Continuous Gate-Source Voltage	V_{GSS}		± 20	V
Drain Current-continuous	I_D		-11	A
	$I_D(T_C=100^\circ C)$		-6	A
Drain Current-pulse (note 1)	I_{DM}		-44	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}		700	mJ
Maximum Power Dissipation	P_D	$T_C=25^\circ C$	150	W
		$T_C=100^\circ C$	80	W
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($T_{CASE}=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	-200	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-V_{DSS}, V_{GS}=0V$	-	-	-10	μA

Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-2.5	-3.2	-4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -10A$	-	460	550	m Ω
Forward Trans-conductance	g_{fs}	$V_{DS} = -50V, I_D = -6A$ (note 4)	-	10	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = -25V, V_{GS} = 0V,$ $f = 1.0MHz$	-	1252	-	pF
Output capacitance	C_{oss}		-	381	-	pF
Reverse transfer capacitance	C_{rss}		-	83	-	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 _{DD} =-100V,I _D =-11A, R _G =10Ω,V _{GS} =-10V (note 4)	-	16	-	ns
Turn-On rise time	t _r		-	45	-	ns
Turn-Off delay time	t _{d(Off)}		-	42	-	ns
Turn-Off rise time	t _f		-	40	-	ns
Total Gate Charge	Q _g	V _{DS} =-160V,I _D =-11A, V _{GS} =-10V (note 4)	-	36	-	nC
Gate-Source charge	Q _{gs}		-	6.2	-	nC
Gate-Drain charge	Q _{gd}		-	24	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =-1A	-	-0.78	-1.1	V
Diode Forward Current	I _S	-	-	-	-11	A
Repetitive Pulse Drain-Source Diode Forward Current	I _{SM}	-	-	-	-44	A
Reverse recovery time	t _{rr}	V _{GS} =0V,I _S =-11A -dI/dt=-100A/μs	-	255	-	ns
Reverse recovery charge	Q _{rr}		-	3.0	-	μC

Thermal Characteristics

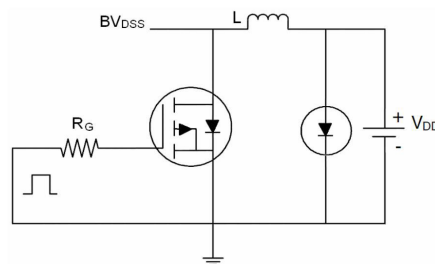
Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th}(J-C)$	0.83	$^{\circ}C/W$
Thermal Resistance, junction to Ambient	$R_{th}(J-A)$	50	$^{\circ}C/W$

Notes:

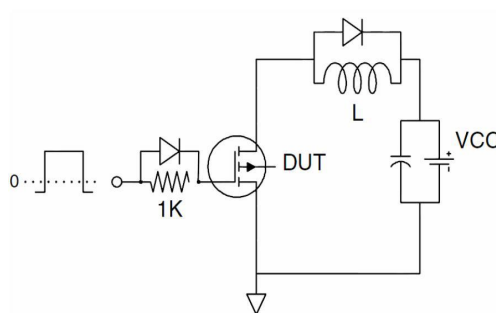
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production

Test Circuit

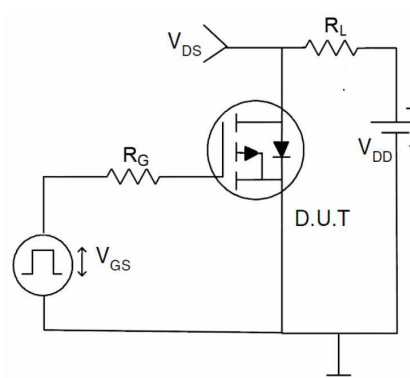
(1) E_{AS} Test Circuit



(2) Gate Charge Test Circuit

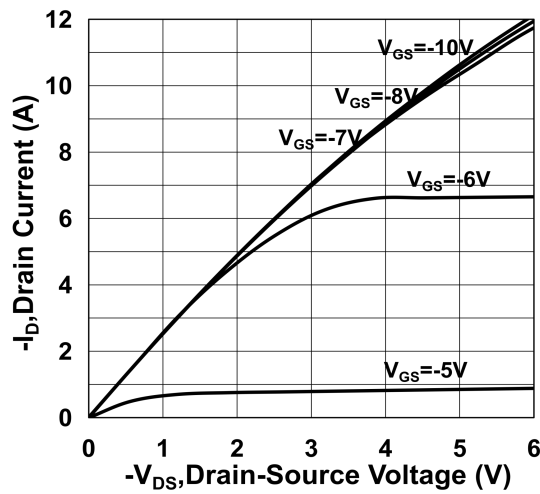


(3) Switch Time Test Circuit

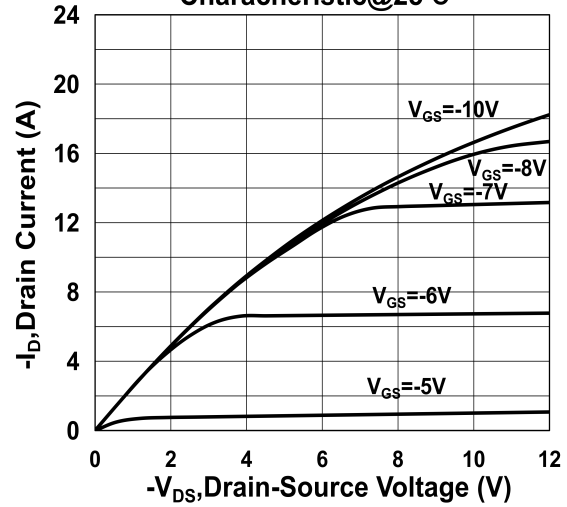


Typical characteristic curves

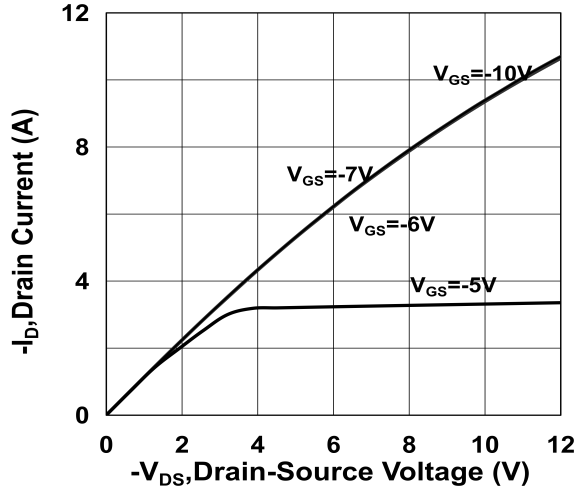
On-Region Characteristic@25°C



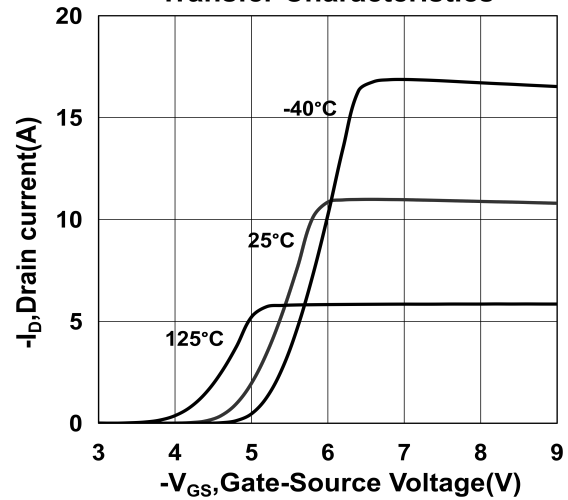
Extended On-Region Characteristic@25°C



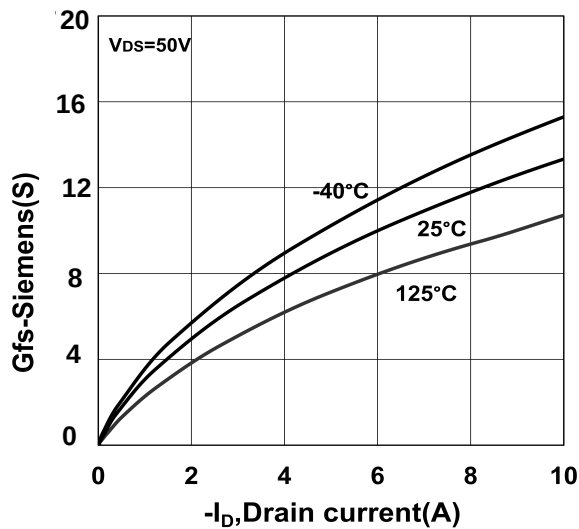
On-Region Characteristic@125°C



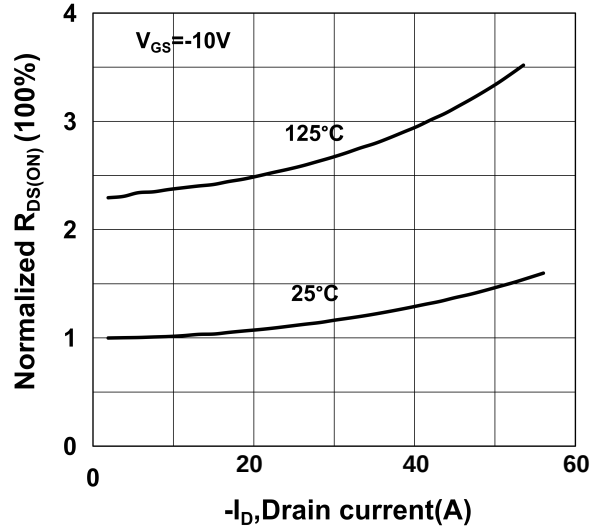
Transfer Characteristics



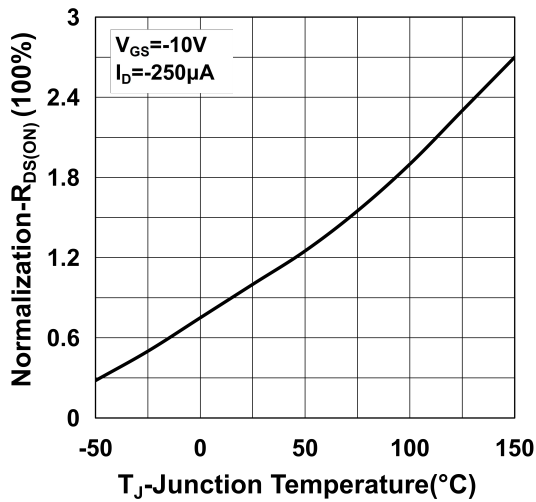
Transconductance



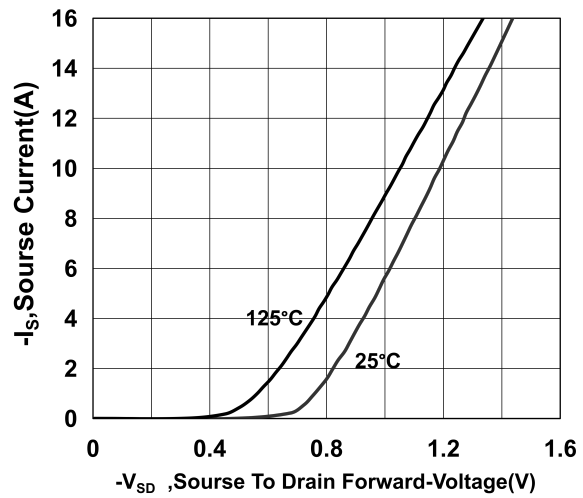
Normalized On-Resistance Variation vs Drain Current and Gate Voltage



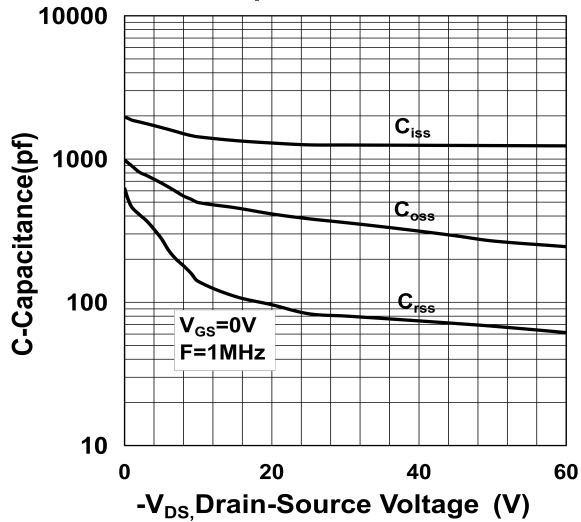
Normalization On-Resistance
Variation vs Junction Temperature



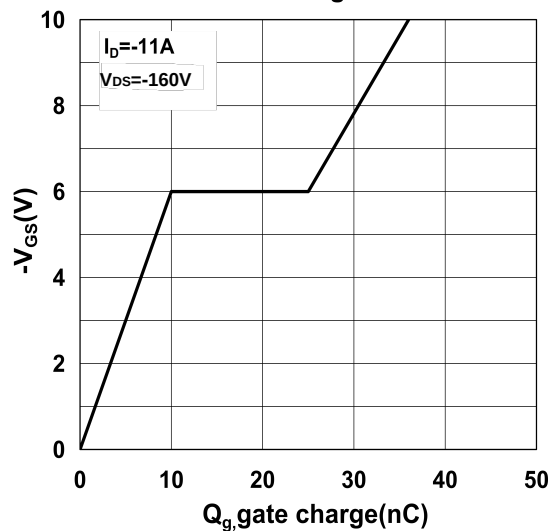
Body Diode Forward Voltage Variation
with Source Current and Temperature



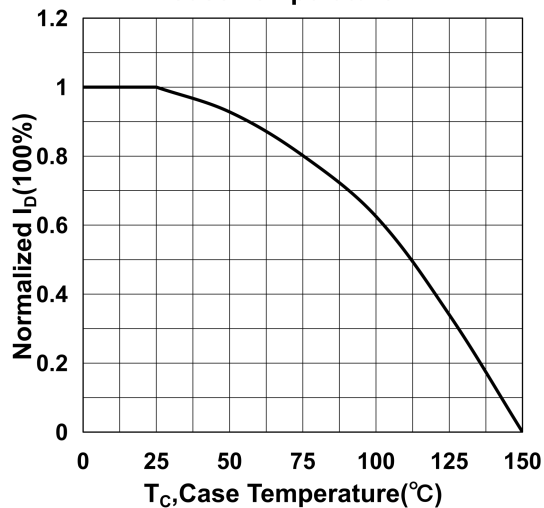
Capacitance



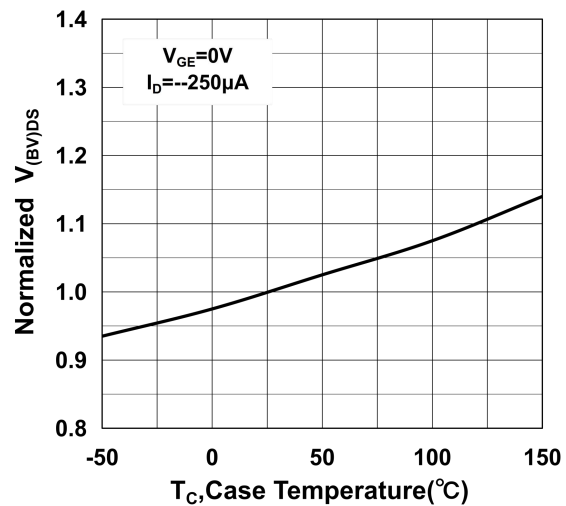
Gate Charge

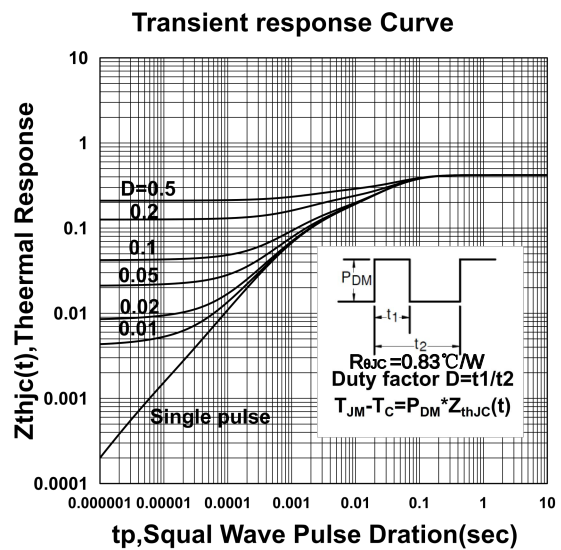
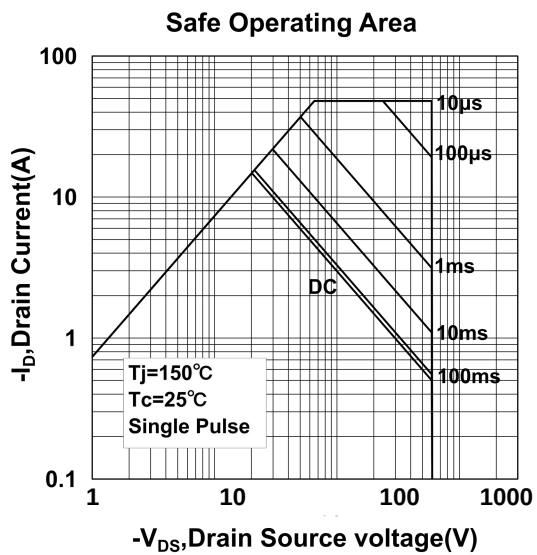
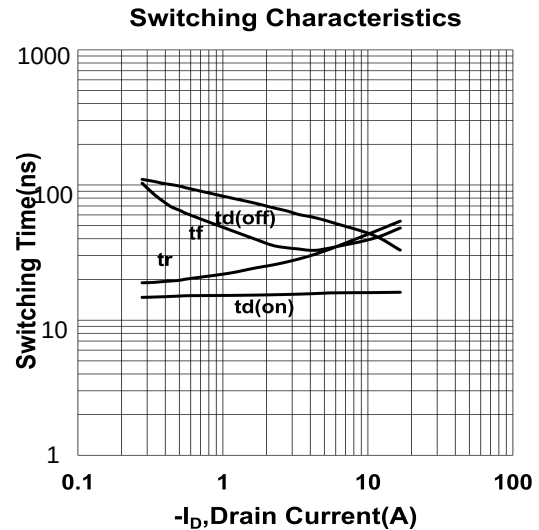
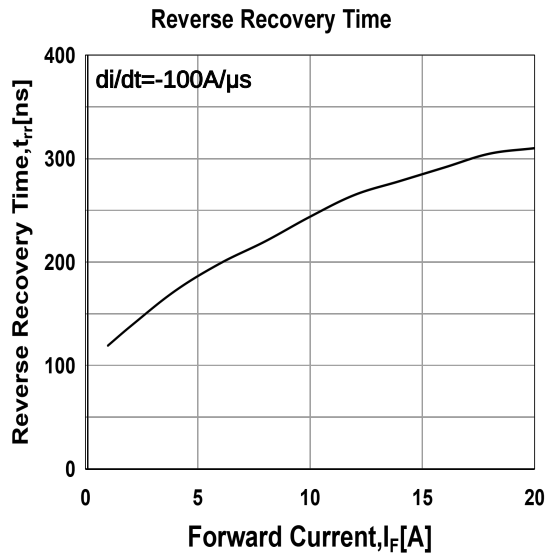
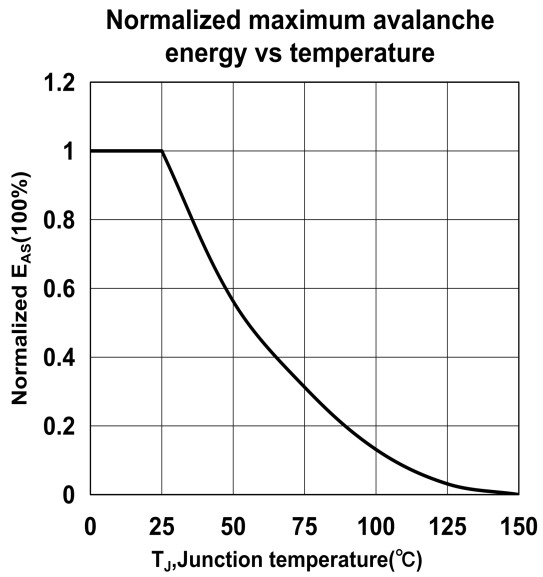
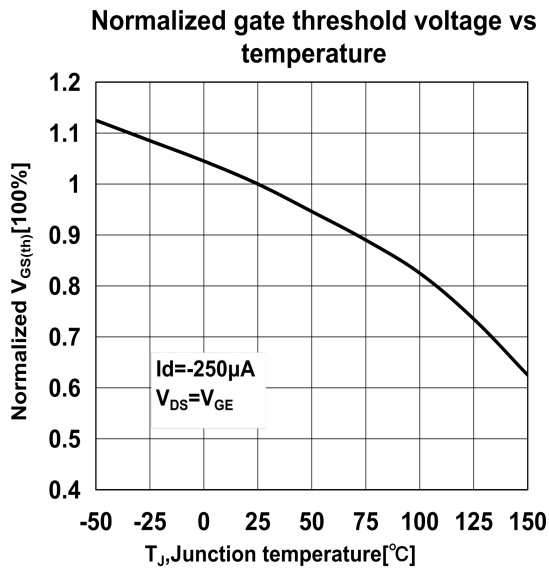


Maximum Drain Current vs
Case Temperature



Normalized V_{(BV)DS} vs temperature





Package Mechanical DATA

