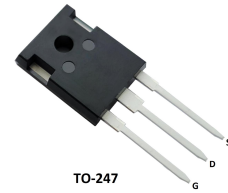


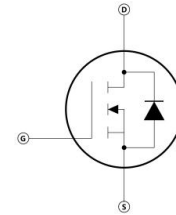
Features

- 100% avalanche tested
- Avalanche ruggedness
- Gate charge minimized
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



Applications

- PV Inverter
- Switching applications



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

Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DS}	1650	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain current (continuous) at $T_C = 25^\circ\text{C}$	I_D	15	A
Drain current (continuous) at $T_C = 100^\circ\text{C}$		11	
Drain current (pulsed)		60	
Avalanche current	I_{AR}	8.8	A
Single pulse avalanche energy (starting $T_J=25^\circ\text{C}$, $I_D=I_{AR}$, $V_{DD}=50\text{V}$, $L=20\text{mH}$)	E_{AS}	800	mJ
Total dissipation at $T_C = 25^\circ\text{C}$	P_D	120	W
Derating factor		2.56	W/ $^\circ\text{C}$
Operating junction temperature	T_J	-55 ~ 150	$^\circ\text{C}$
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_J	300	$^\circ\text{C}$

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
On /off states						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 1\text{ mA}$, $V_{GS} = 0$	1650			V
Zero gate voltage drain current ($V_{GS} = 0$)	I_{DSS}	$V_{DS} = \text{Max rating}$ $V_{DS} = \text{Max rating}$, $T_C = 125^\circ\text{C}$			100 1000	μA
Gate-body leakage current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 20\text{ V}$			± 200	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	3	4	5	V

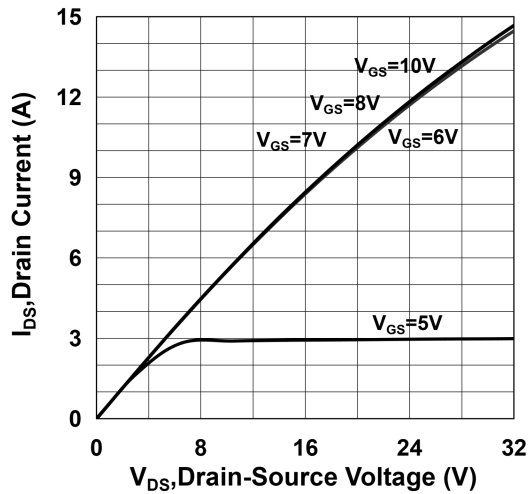
Static drain-source on resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1A	-	1.75	2.2	Ω
Dynamic						
Forward transconductance	g _{fs}	V _{DS} = 15 V, I _D = 4A		7		S
Input capacitance	C _{iss}	V _{DS} =25V,f=1MHz,V _{GS} =0		5100		pF
Output capacitance	C _{oss}			505		
Reverse transfer capacitance	C _{rss}			42.5		
Total gate charge	Q _g	V _{DD} =1200V,I _D =15A V _{GS} =10V		42		nC
Gate-source charge	Q _{gs}			14		
Gate-drain charge	Q _{gd}			13		
Switching times						
Turn-on delay time	t _{d(on)}	V _{DD} = 750 V, I _D =7 A, R _G = 4.7 Ω, V _{GS} = 10 V		50		ns
Rise time	t _r			16		
Turn-off-delay time	t _{d(off)}			100		
Fall time	t _f			80		
Source drain diode						
Source-drain current	I _{SD}			12		A
Source-drain current (pulsed)	I _{SDM}			48		
Forward on voltage	V _{SD}	I _{SD} = 15 A, V _{GS} = 0		1.5		V
Reverse recovery time	t _{rr}	I _{SD} = 15A, di/dt=100A/μs V _{DD} = 60 V		950		ns
Reverse recovery charge	Q _{rr}			9		μC
Reverse recovery current	I _{RRM}			20		A
Reverse recovery time	t _{rr}	S _D =15A, di/dt=100A/μs V _{DD} = 60V T _J =150°C		900		ns
Reverse recovery charge	Q _{rr}			8.5		μC
Reverse recovery current	I _{RRM}			19		A

Thermal data

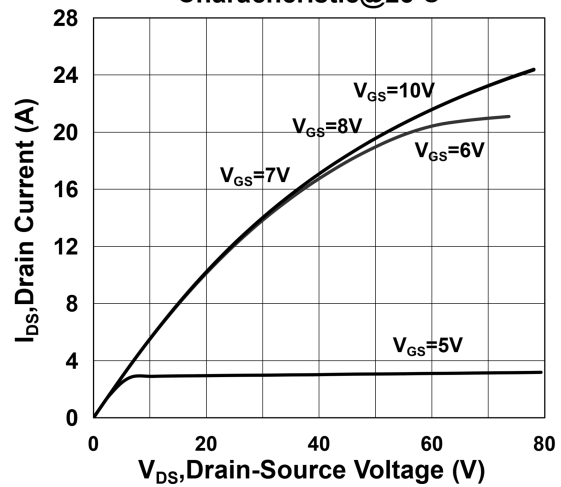
Parameter	Symbol	Value	Unit
Thermal resistance junction-case max	$R_{thj-case}$	1	$^\circ C/W$
Thermal resistance junction-ambient max	$R_{thj-amb}$	50	

Electrical characteristics

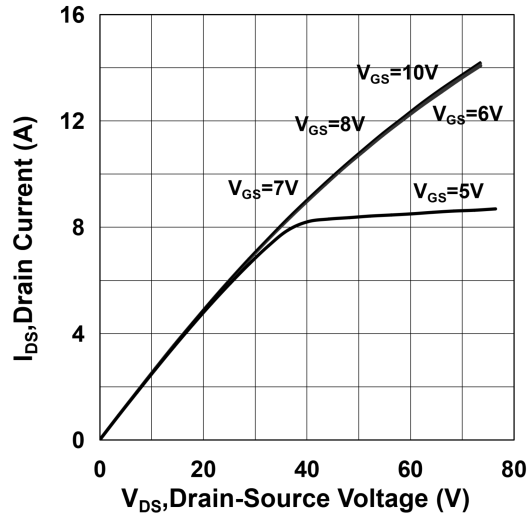
On-Region Characteristic@25°C



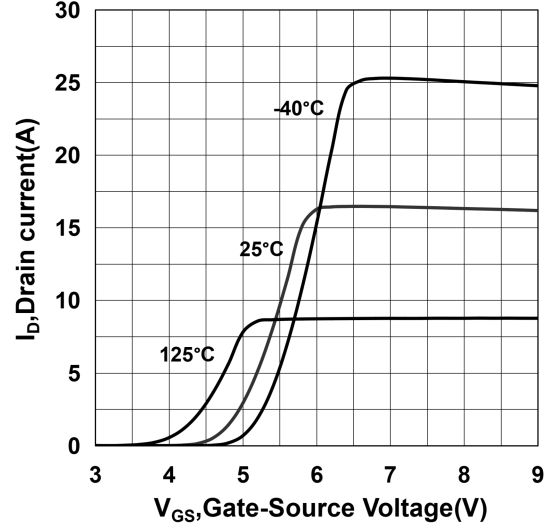
Extended On-Region Characteristic@25°C



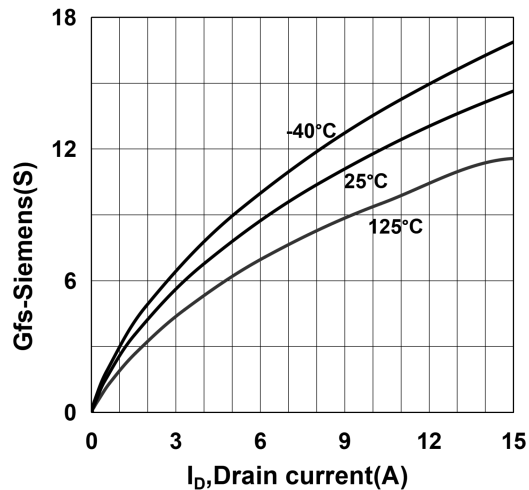
On-Region Characteristic@125°C



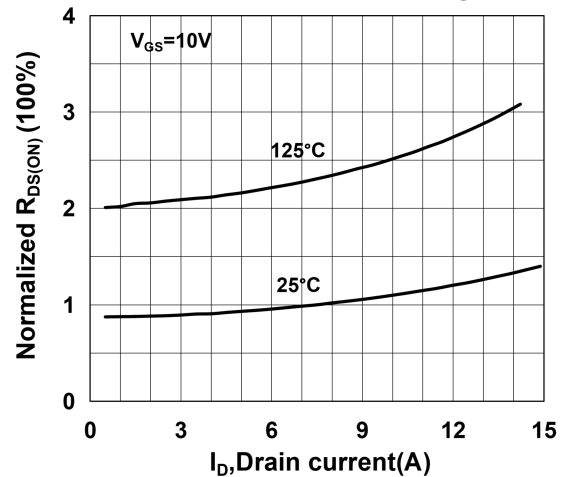
Transfer Characteristics



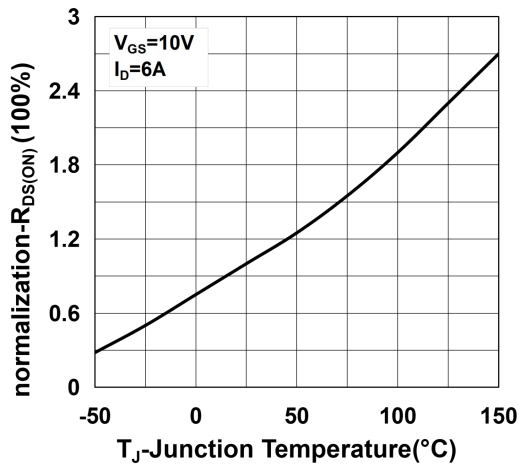
Transconductance



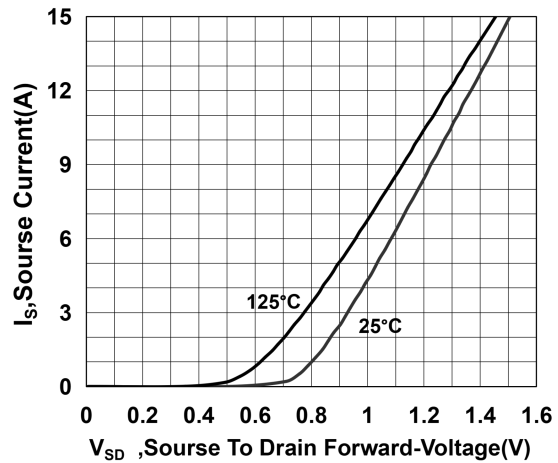
Normalized On-Resistance Variation vs Drain Current and Gate Voltage



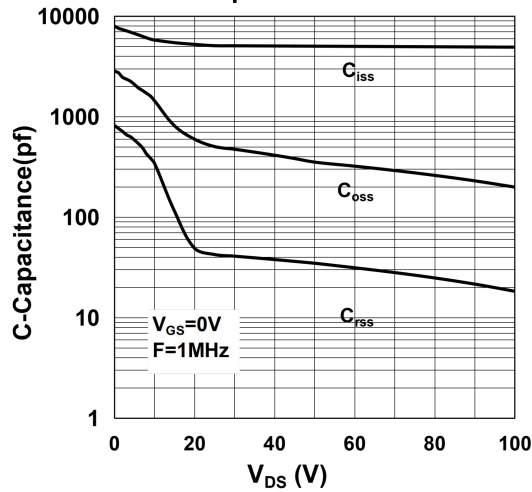
**Normalization On-Resistance
Variation vs Junction Temperature**



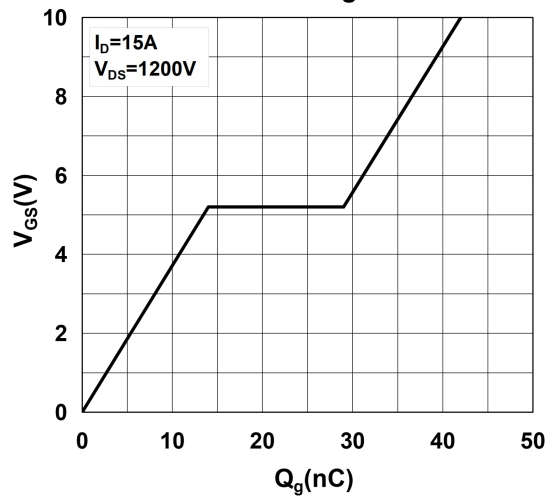
**Body Diode Forward Voltage Variation
with Source Current and Temperature**



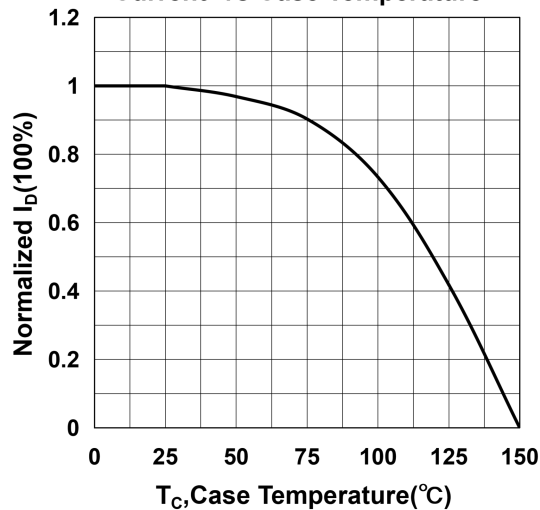
Capacitance



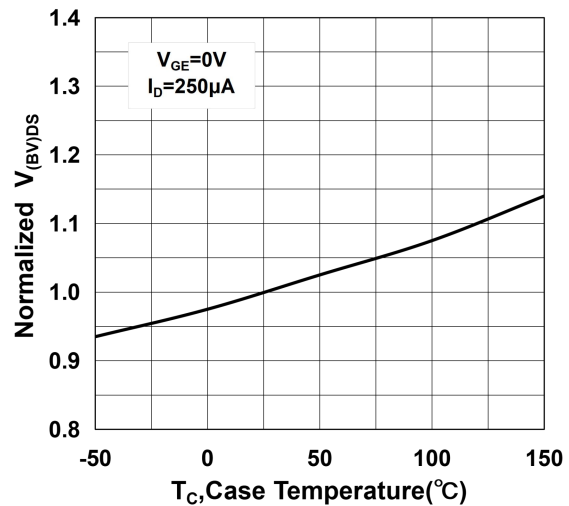
Gate Charge



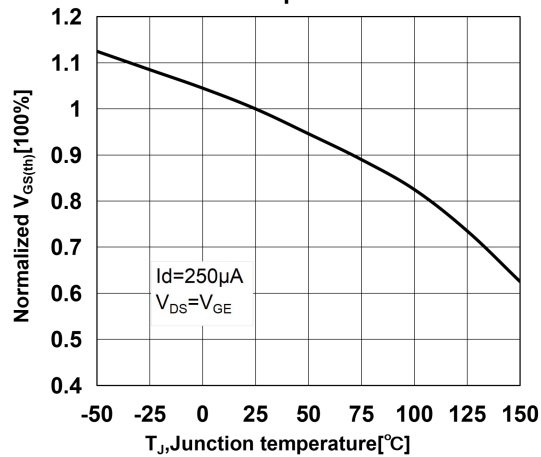
**Normalized Maximum Drain
Current vs Case Temperature**



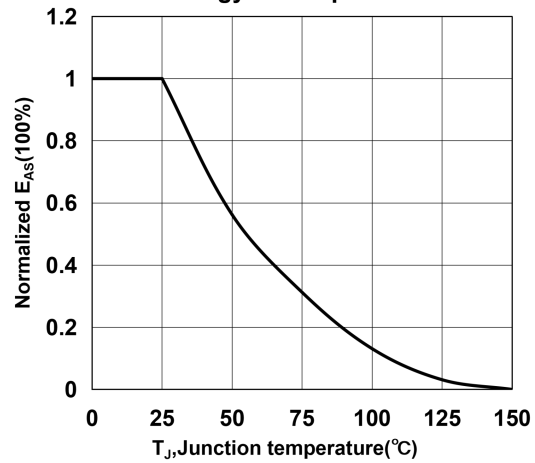
Normalized $V_{(BV)DS}$ vs temperature



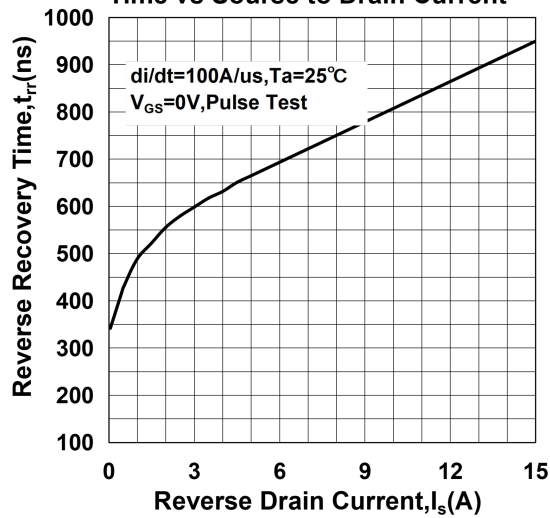
Normalized gate threshold voltage vs temperature



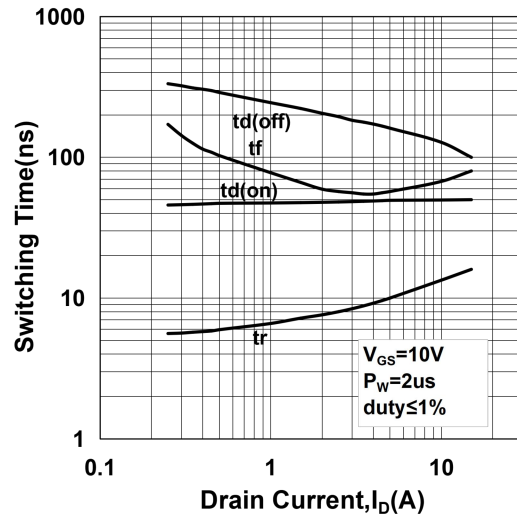
Normalized maximum avalanche energy vs temperature



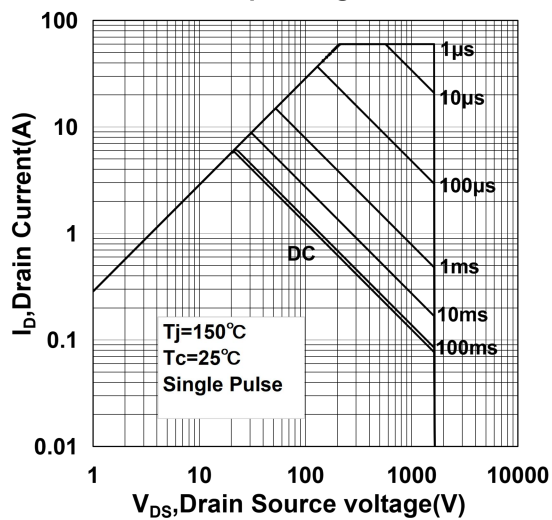
Body Diode Reverse Recovery Time vs Source to Drain Current



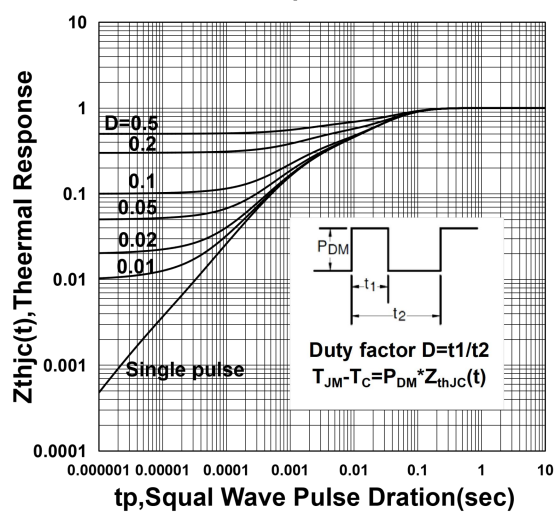
Switching Characteristics



Safe Operating Area



Transient response Curve



Package outline dimension

