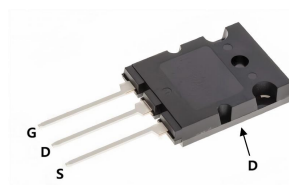


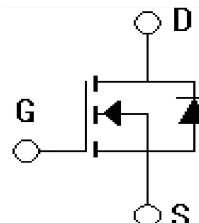
Features

- $V_{DS}=1500V, I_D=30A$
- Low C_{rss}
- Low gate charge
- Improved dv/dt capability
- RoHS product



Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1500	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}	120	A
Single Pulsed Avalanche Energy ^(note 2)	E_{AS}	2142	mJ
Maximum Power Dissipation	P_D	$T_c=25^\circ C$	W
		$T_c=100^\circ C$	W
Peak Diode Recovery voltage slope ^(note 3)	dv/dt	4.5	V/ns
Operating and Storage Temperature Range	T_J, T_{STG}	$-45 \sim +150$	$^\circ C$
Maximum Lead Temperature for Soldering Purposes	T_L	300	$^\circ C$

1. Drain current limited by maximum junction temperature

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

Parameter	Symbol	Tests conditions	Min.	Typ.	Max.	Unit
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	1500	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V, T_c=25^\circ C$	-	-	10	μA
		$T_c=125^\circ C$	-	-	500	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	3.5	5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=1A$	-	659	820	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=40V, I_D=10A$	-	27.5	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	8120	-	pF
Output capacitance	C_{oss}		-	345	-	pF
Reverse transfer capacitance	C_{rss}		-	32	-	pF

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

Parameter	Symbol	Tests conditions	Min.	Typ.	Max.	Unit
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =750V,I _D =15A, V _{GS} =10V,R _G =25Ω	-	40	-	ns
Turn-On rise time	t _r		-	42	-	ns
Turn-Off delay time	t _{d(Off)}		-	132	-	ns
Turn-Off rise time	t _f		-	45	-	ns
Total Gate Charge	Q _g	V _{DS} =1200V,I _D =15A, V _{GS} =10V,R _G =25Ω	-	101	-	nC
Gate-Source charge	Q _{gs}		-	27	-	nC
Gate-Drain charge	Q _{gd}		-	45	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =1A	-	0.66	1.2	V
Diode Forward Current	I _S		-	-	30	A
Reverse recovery time	T _{rr}	I _S =15A,V _{GS} =0V, dI/dt=100A/μs	-	530	-	ns
Reverse recovery charge	Q _{rr}		-	8.2	-	μC

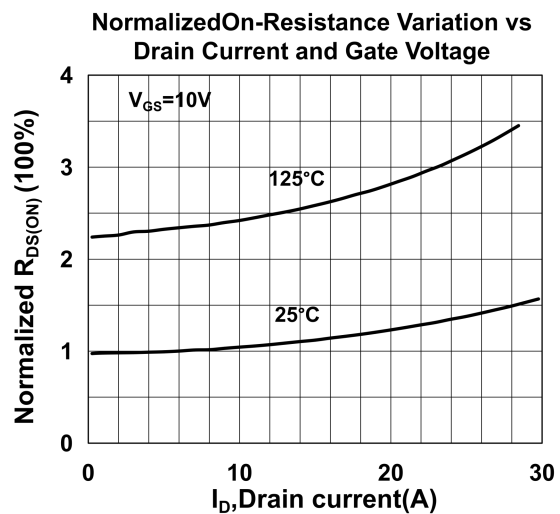
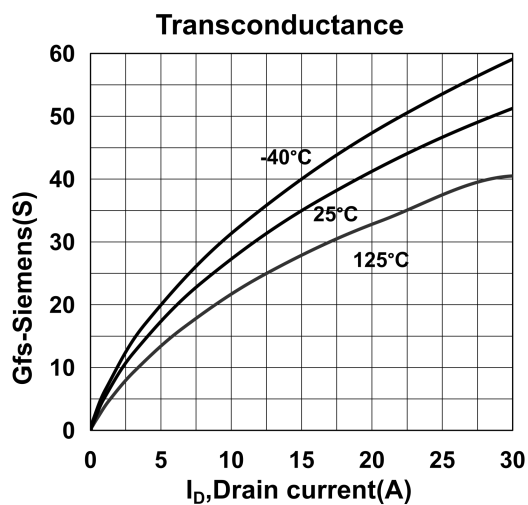
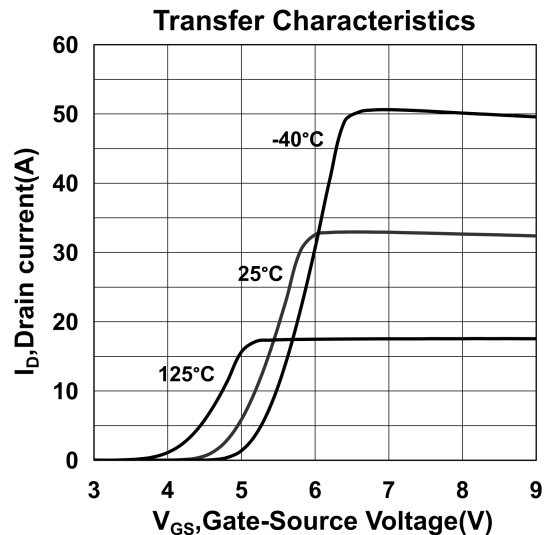
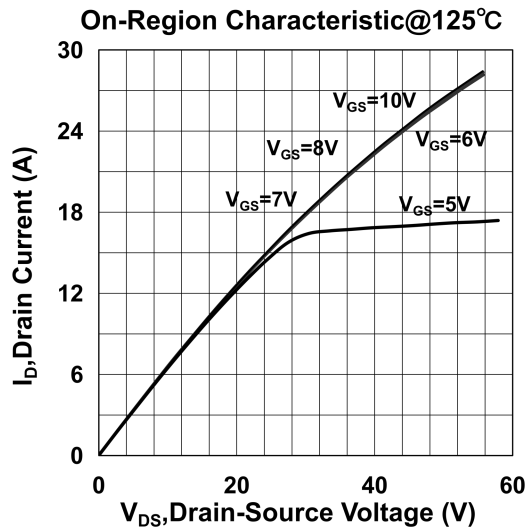
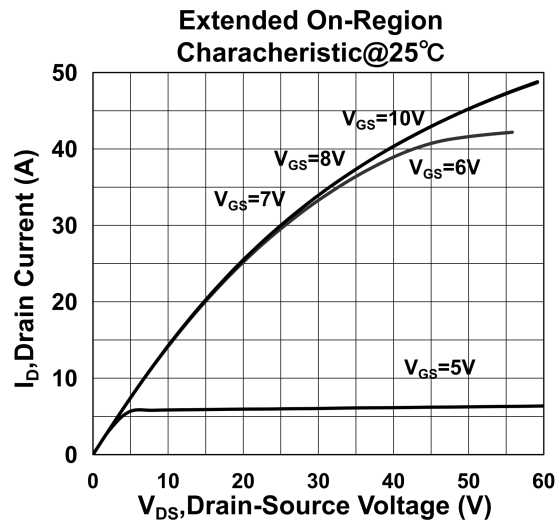
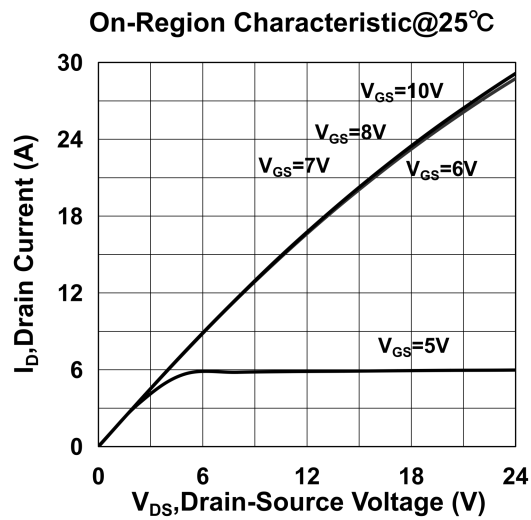
Thermal Characteristic

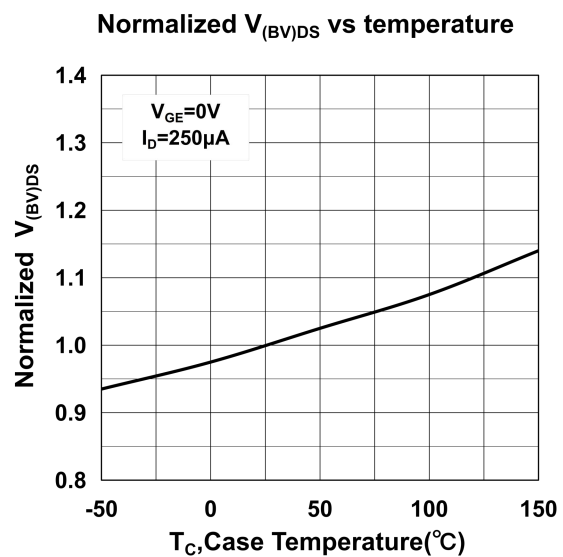
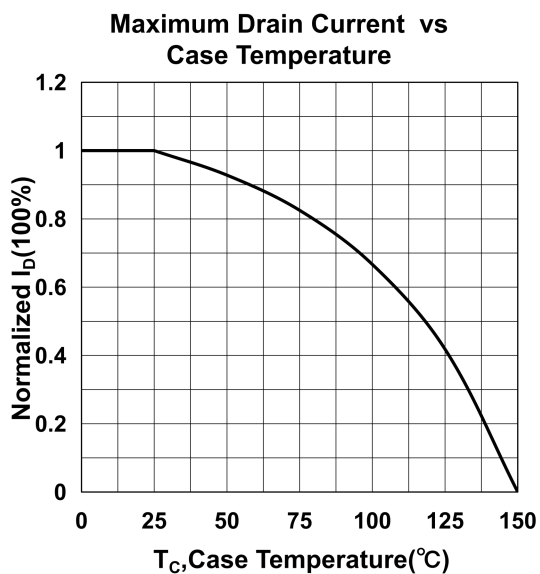
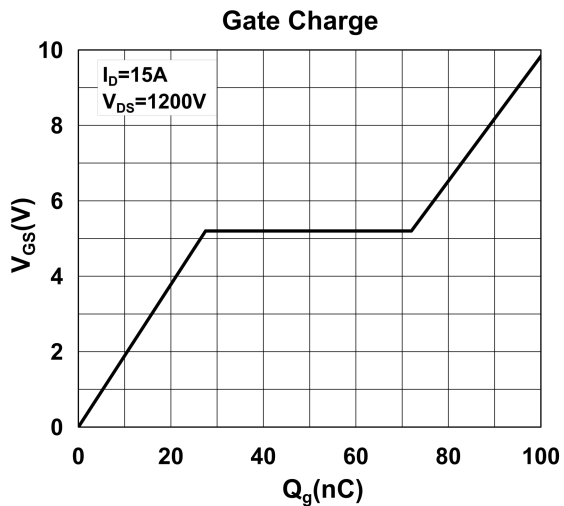
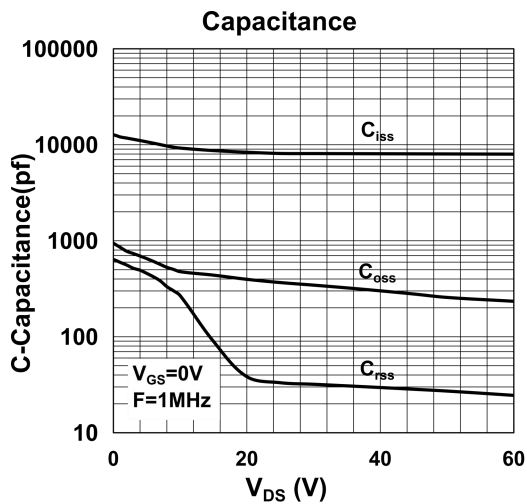
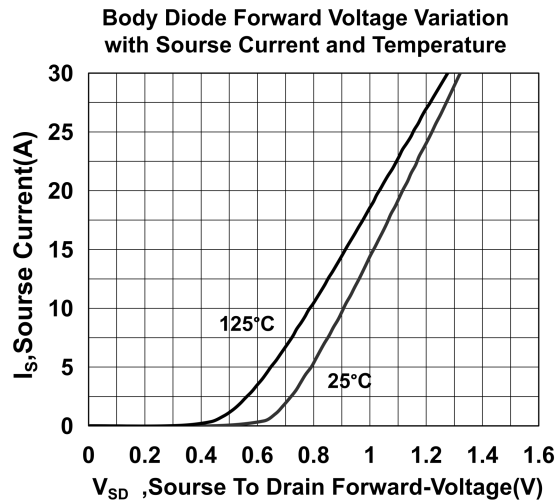
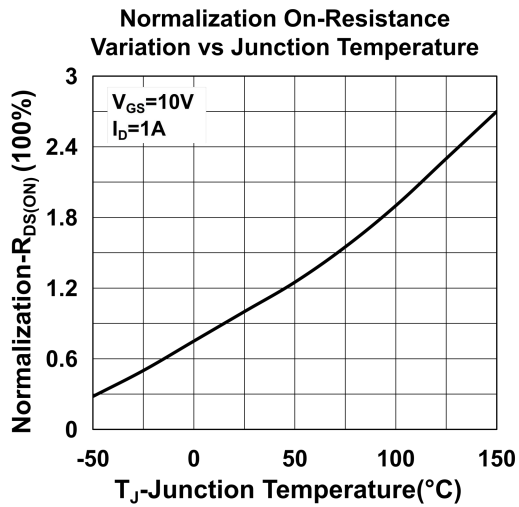
Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.10	$^{\circ}C/W$
Thermal Resistance, junction to Ambient	$R_{th(j-A)}$	40	$^{\circ}C/W$

Notes:

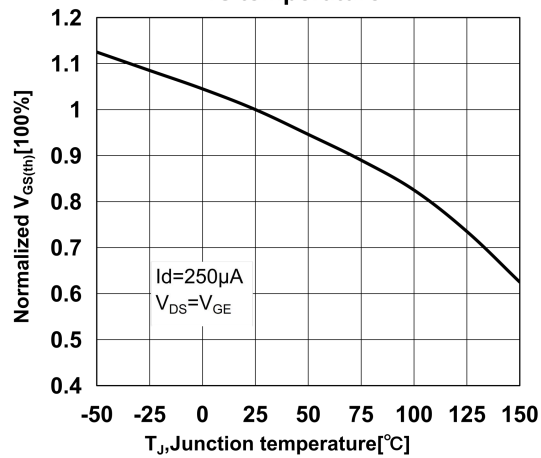
- 1: Pulse width limited by maximum junction temperature
- 2: $L=10mH, I_{AS}=20A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 30A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
- 4: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature

Electrical Characteristics

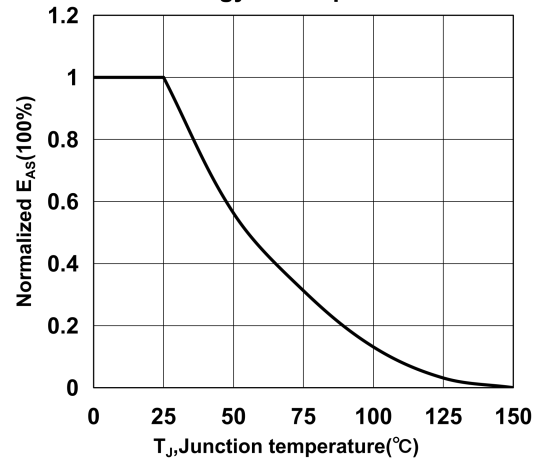




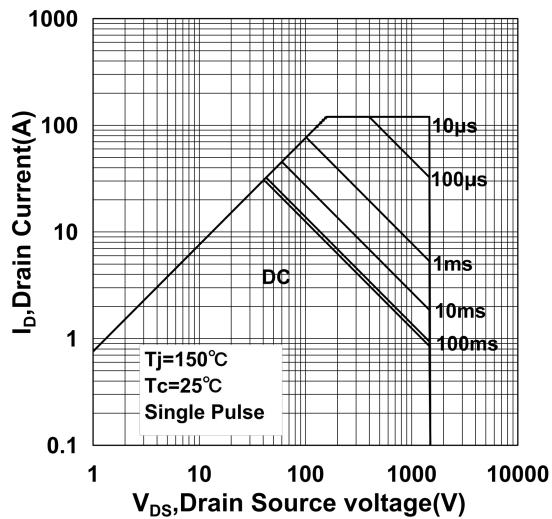
Normalized gate threshold voltage
vs temperature



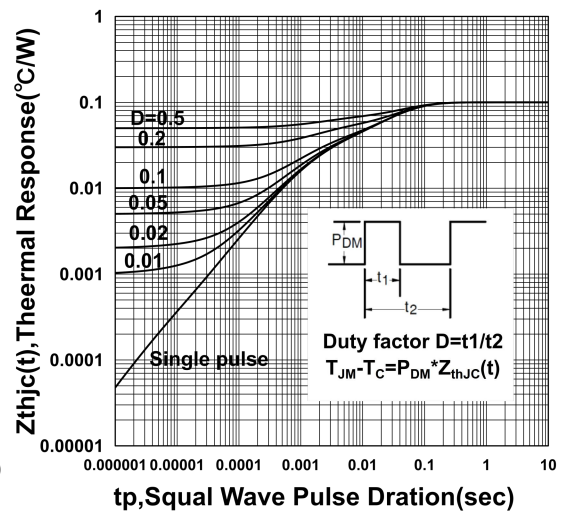
Normalized maximum avalanche
energy vs temperature



Safe Operating Area



Transient response Curve



Package Mechanical Data

