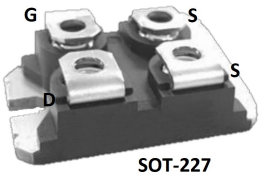
Features

- N-Channel,Low $R_{DS(on)}$
- High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated



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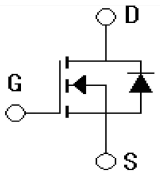
Applications

- DC-DC Converters
- DC-AC Inverters
- Battery Chargers
- Switch-Mode and Resonant-Mode Power Supplies
- DC Choppers
- Temperature and Lighting Controls



Absolute Ratings (Tc=25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Transient Gate-Source Voltage	V_{GSM}	±30	V
Continuous Gate-Source Voltage	V_{GSS}	±20	V
Drain Current -continuous	I_D	50	A
Drain Current - pulse(note 1)	I_{DM}	110	A
Single Pulsed Avalanche Energy(note 2)	E_{AS}	4	J
Peak Diode Recovery voltage slope(note 3)	dv/dt	50	V/ns
Power Dissipation	P_D	900	W
Operating and Storage Temperature Range	T_j,T_{STG}	-55~+150	℃
Maximum Lead Temperature for Soldering Purposes	T_L	300	℃

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Unit
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	I_D=250uA,V_{GS}=0V	1000	-	-	V
Drain cut-off current	I_{DSS}	V_{DS}=1000V,V_{GS}=0V	-	-	50	μA
Gate-body leakage current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V	-	-	±200	nA

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	3.0	-	5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=25A (note 4)	-	220	-	mΩ
Forward transconductance	G_{fs}	V_{DS}=20V,I_D=25A (note 4)	-	40	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz(note 5)	-	13	-	nF
Output capacitance	C_{oss}		-	1000	-	pF
Reverse transfer capacitance	C_{rss}		-	85	-	pF
Switching Characteristics						
Turn-On delay time	td(on)	V_{DD}=500V,I_D=25A Rg=0.5Ω	-	50	-	ns
Turn-On rise time	t_r		-	30	-	ns
Turn-Off delay time	$T_{d(off)}$		-	65	-	ns
Turn-Off Fall time	t_f		-	25	-	ns
Total Gate Charge	Q_g	V_{DD}=500V,I_D=25A V_{GS}=10V(note 5)	-	260	-	nC
Gate-Source charge	Q_{gs}		-	75	-	nC
Gate-Drain charge	Q_{gd}		-	113	-	nC
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=30A, (note 4)	-	0.84	1.2	V
Continuous Drain-Source Diode Forward Current	I_S		-	50	-	A
Reverse recovery time	t_{rr}	I_F=20A,dI_F/dt=-100A/us V_R=100V	-	300	-	ns
Reverse recovery charge	Q_{rr}		-	2	-	uC

Thermal Characteristics

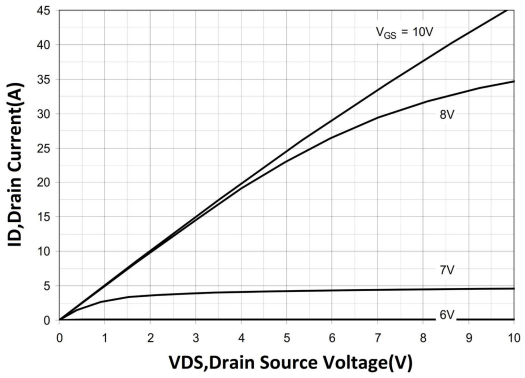
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case,Max	$R_{th(j-C)}$	0.138	℃/W
Thermal Resistance,Junction-to-Ambient,Max	$R_{th(j-A)}$	40	

Notes:

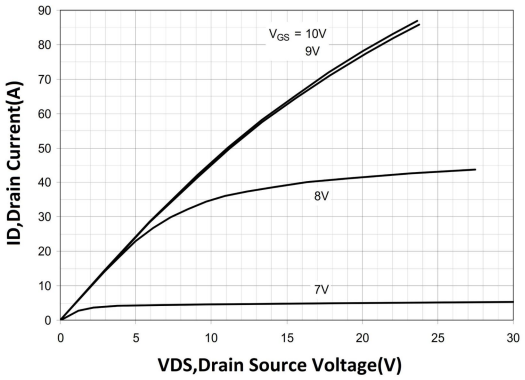
1. Pulse width limited by maximum junction temperature
2. L=19mH,I_{AS}=20A,V_{DD}=50V,starting T_J=25℃,T_{Jmax}≤150℃
3. $I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$
4. Pulse test, t ≦ 300μs, duty cycle, d ≦ 2%.
5. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristics (Curves)

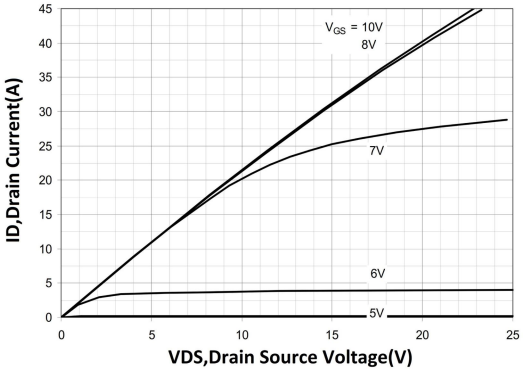
Output Characteristics@Tj=25℃



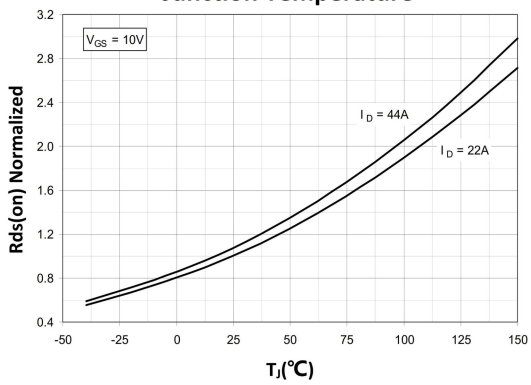
Extended Output Characteristics@Tj=25℃



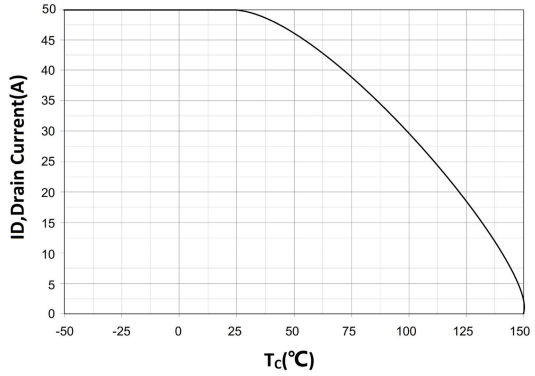
Output Characteristics@Tj=125℃



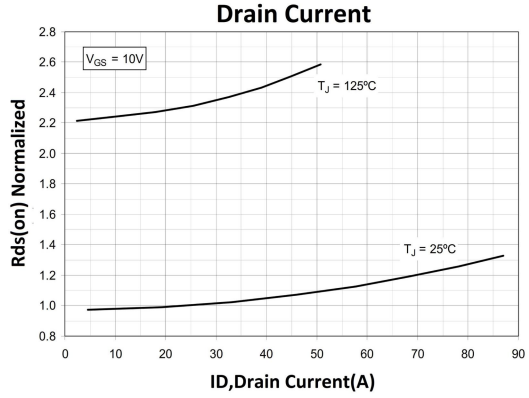
Rds(on) Normalized vs. Junction Temperature



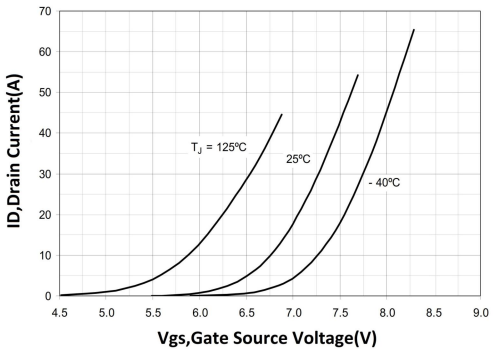
Maximum Drain Current vs. Case Temperature



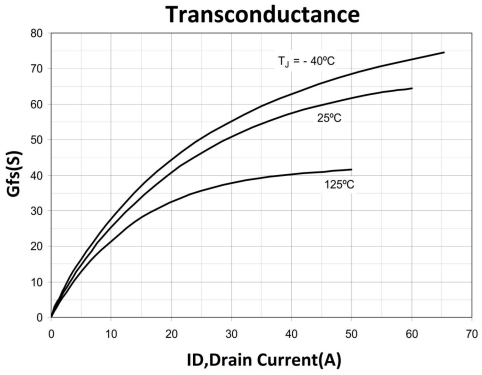
Rds(on) Normalized vs. Drain Current



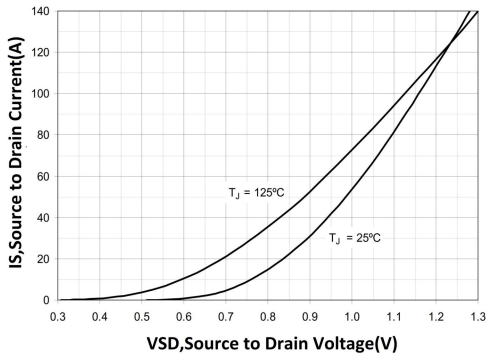
Input Admittance



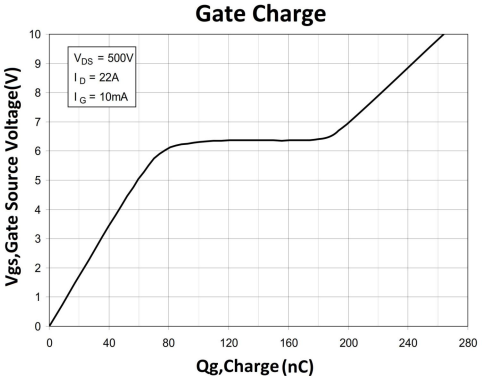
Transconductance



Diode Forward Voltage



Gate Charge



Capacitance

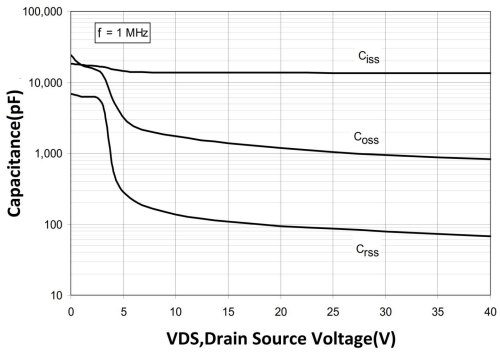
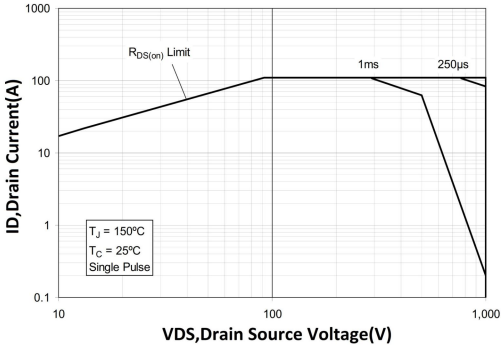
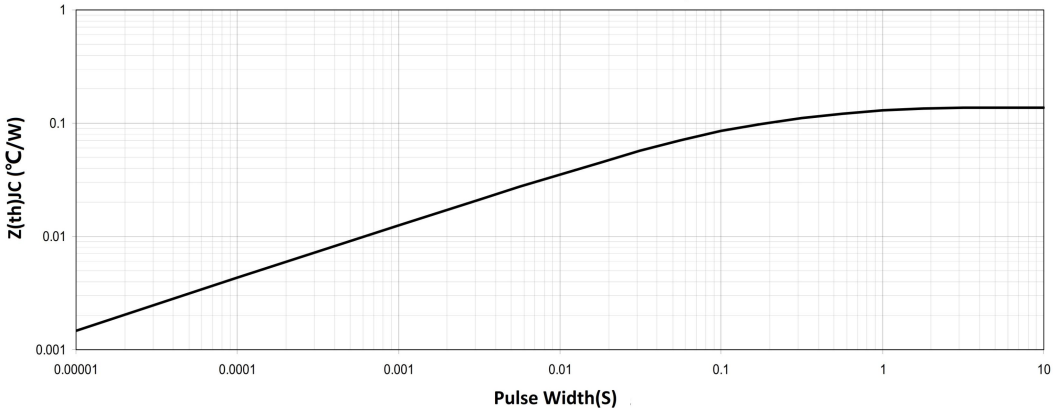


Fig. 12. Forward-Bias Safe Operating Area



Maximum Transient Thermal Impedance



Package Mechanical DATA