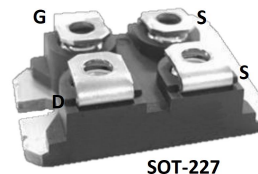


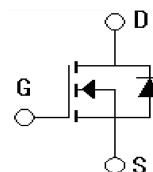
Features

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



Applications

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



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Drain Current -continuous	I_D	50	A
Drain Current - pulse*	I_{DM}	110	A
Gate-Source Voltage	V_{GSS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	4	J
Power Dissipation	PD	900	W
Operating and Storage Temperature Range	T_j, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$
Maximum Lead Temperature for Soldering Purposes	T_L	300	$^\circ\text{C}$

*Drain current limited by maximum junction temperature

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

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	1000	-	-	V
Drain cut-off current	I_{DSS}	$V_{DS}=1000, V_{GS}=0\text{V}$	-	-	50	μA
Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0\text{V}, V_{GS}=30\text{V}$	-	-	200	nA
Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0\text{V}, V_{GS}=-30\text{V}$	-	-	-200	nA

On-Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250uA	3.5	-	6.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V,I _D =25A (note1)	-	220	-	mΩ
Forward transconductance	G _{fs}	V _{DS} =20V,I _D =25A (note1)	-	40	-	S
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	13	-	nF
Output capacitance	C _{oss}		-	1000	-	pF
Reverse transfer capacitance	C _{rss}		-	85	-	pF
Switching Characteristics						
Turn-On delay time	t _{d(on)}	V _{DD} =500V,I _D =25A R _g =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	-	260	-	nC
Gate-Source charge	Q _{gs}		-	75	-	nC
Gate-Drain charge	Q _{gd}		-	113	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =30A, (note1)	-	0.84	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I _S		-	50	-	A
Reverse recovery time	trr	IF=20A dIF/dt=-100A/us VR=100V	-	300	-	ns
Reverse recovery charge	Qrr		-	2	-	uC

Thermal Characteristic

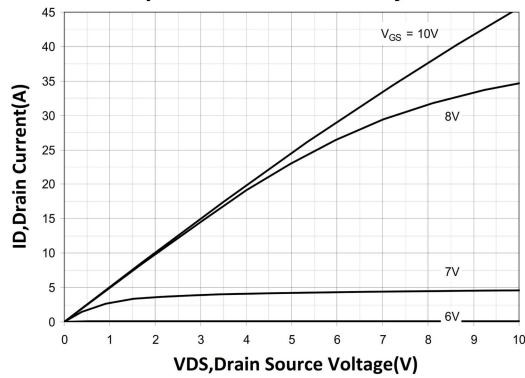
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.138	$^{\circ}C/W$

Notes:

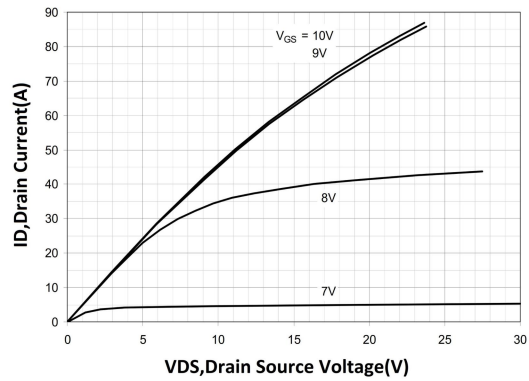
1. Pulse test, $t \leq 300\mu s$, duty cycle, $d \leq 2\%$.

Typical Electrical and Thermal Characteristics (Curves)

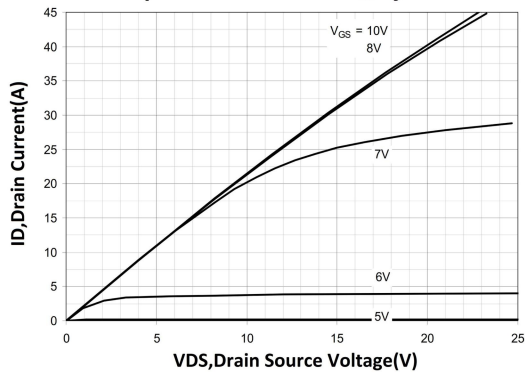
Output Characteristics@T_j=25°C



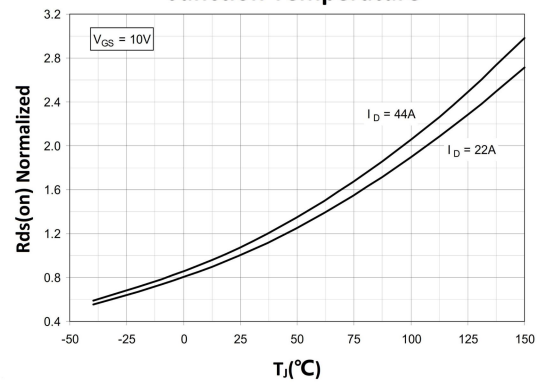
Extended Output Characteristics@T_j=25°C



Output Characteristics@T_j=125°C

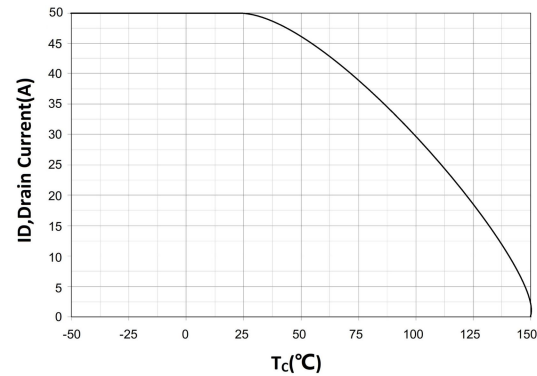
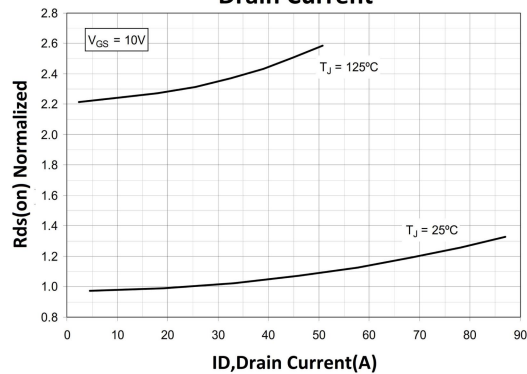


R_{ds(on)} Normalized vs. Junction Temperature

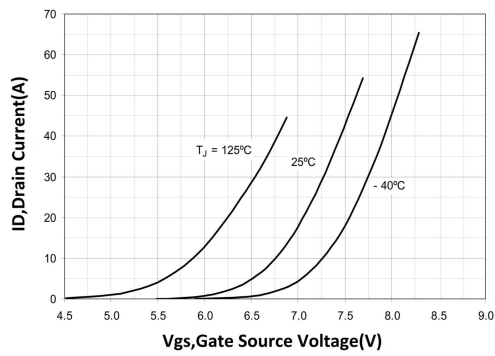


Maximum Drain Current vs. Case Temperature

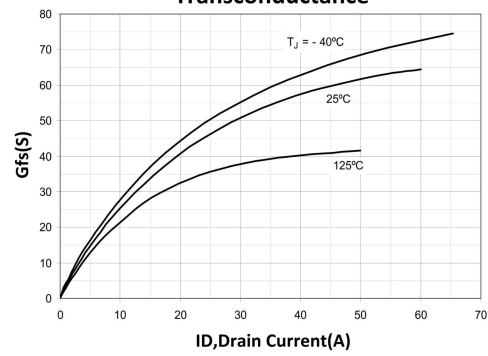
R_{ds(on)} Normalized vs. Drain Current



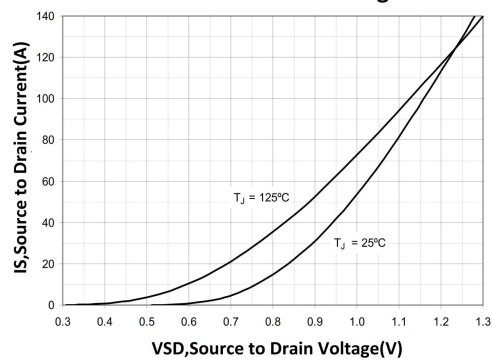
Input Admittance



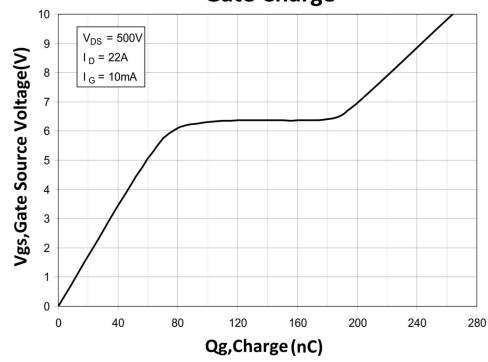
Transconductance



Diode Forward Voltage



Gate Charge



Capacitance

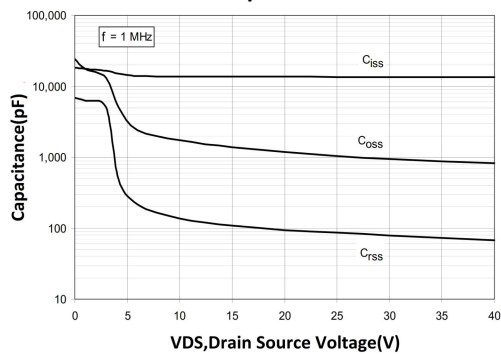
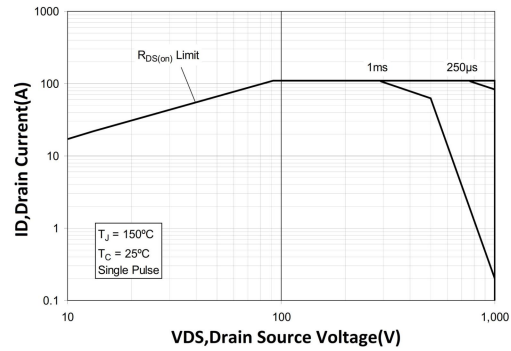
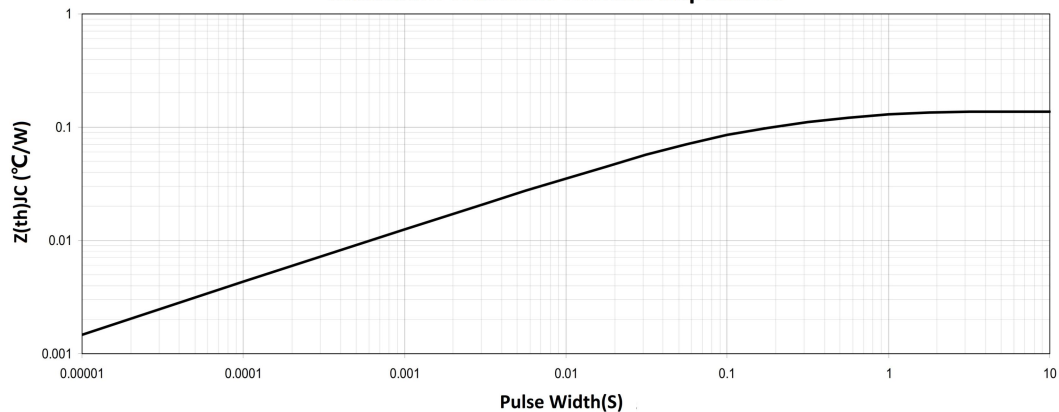


Fig. 12. Forward-Bias Safe Operating Area



Maximum Transient Thermal Impedance



Package Mechanical DATA

