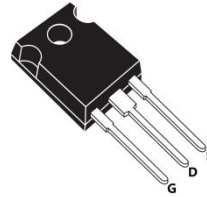


Features

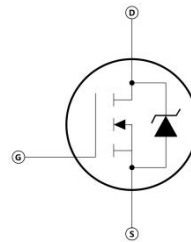
- 100% avalanche tested
- Avalanche ruggedness
- Gate charge minimized
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



General Description

Applications

- Welder
- UPS
- PV Inverter
- Switching applications



Electrical ratings

Absolute maximum ratings			
Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DS}	1500	V
Gate- source voltage	V_{GS}	± 30	
Drain current (continuous) at $T_C = 25\text{ }^\circ\text{C}$	I_D	9	A
Drain current (continuous) at $T_C = 100\text{ }^\circ\text{C}$		6	
Drain current (pulsed)		I_{DM}	
Total dissipation at $T_C = 25\text{ }^\circ\text{C}$	P_{TOT}	350	W
Derating factor		2.56	W/ $^\circ\text{C}$
Operating junction temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage temperature	T_{stg}		

Thermal data			
Parameter	Symbol	Value	Unit
Thermal resistance junction-case max	$R_{thj-case}$	0.39	W/ $^\circ\text{C}$
Thermal resistance junction-ambient max	$R_{thj-amb}$	50	
Maximum lead temperature for soldering purpose	T_J	300	

Avalanche characteristics			
Parameter	Symbol	Max value	Unit
Avalanche current, repetitive or not-repetitive (pulse width limited by T _J max)	I _{AR}	8	A
Single pulse avalanche energy (starting T _J = 25 °C, I _D = I _{AR} , V _{DD} = 50 V)	E _{AS}	800	mJ

Electrical Characteristics (T_{vj} = 25°C unless otherwise specified)

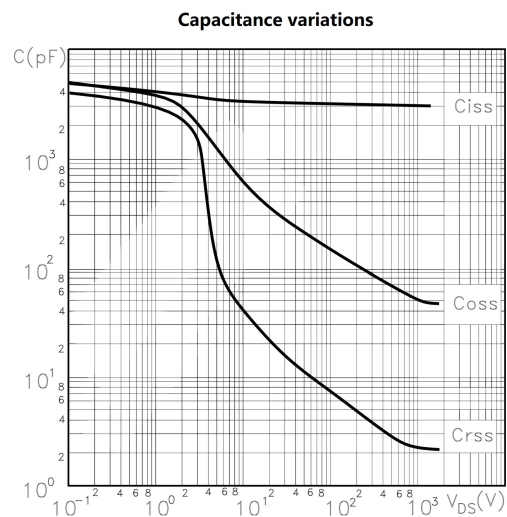
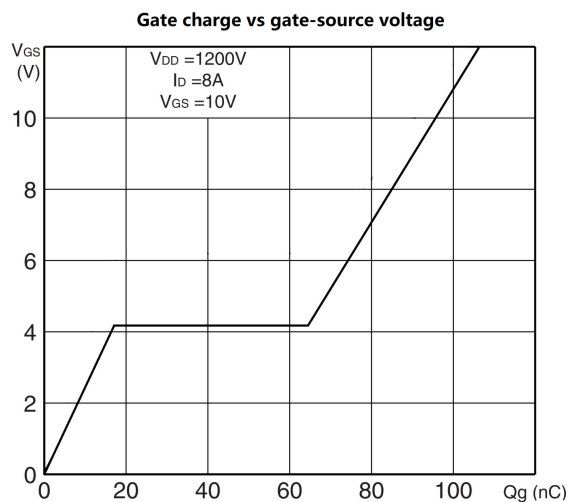
On /off states						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	V _{(BR)DSS}	I _D = 1 mA, V _{GS} = 0	1500			V
Zero gate voltage drain current (V _{GS} = 0)	I _{DSS}	V _{DS} = Max rating V _{DS} =Max rating, T _C =125 °C			10 500	μA
Gate-body leakage current (V _{DS} = 0)	I _{GSS}	V _{GS} = ± 30 V			± 100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	3	4	5	V
Static drain-source on resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 4A	-	2.9	3.5	Ω

Dynamic						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward transconductance	g _{fs}	V _{DS} = 15 V, I _D = 4		7		S
Input capacitance	C _{iss}	V _{DS} =25V, f=1MHz, V _{GS} =0		3150		pF
Output capacitance	C _{oss}			300		
Reverse transfer capacitance	C _{rss}			25		
Equivalent Output capacitance	C _{oss eq.}	V _{GS} =0, V _{DS} =0 to 1200V		120		
Gate input resistance	R _g	f=1MHz Gate DC Bias=0 Test signal level=20mV open drain		2.2		Ω
Total gate charge	Q _g	V _{DD} =1200V, I _D =8A V _{GS} =10V		85		nC
Gate-source charge	Q _{gs}			14		
Gate-drain charge	Q _{gd}			48		

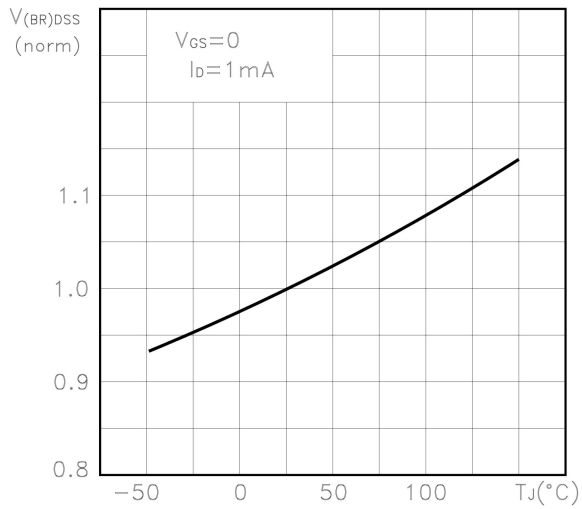
Switching times						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 750\text{ V}, I_D = 4\text{ A},$ $R_G = 4.7\ \Omega, V_{GS} = 10\text{ V}$		50		ns
Rise time	t_r			16		
Turn-off-delay time	$t_{d(off)}$			100		
Fall time	t_f			80		

Source drain diode						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source-drain current	I_{SD}			8		A
Source-drain current (pulsed)	I_{SDM}			40		
Forward on voltage	V_{SD}	$I_{SD} = 8\text{ A}, V_{GS} = 0$		1.5		V
Reverse recovery time	t_{rr}	$I_{SD} = 8\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ $V_{DD} = 60\text{ V}$		950		ns
Reverse recovery charge	Q_{rr}			9		μC
Reverse recovery current	I_{RRM}			20		A
Reverse recovery time	t_{rr}	$S_D = 8\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ $V_{DD} = 60\text{ V}, T_J = 150^\circ\text{C}$		900		ns
Reverse recovery charge	Q_{rr}			8.5		μC
Reverse recovery current	I_{RRM}			19		A

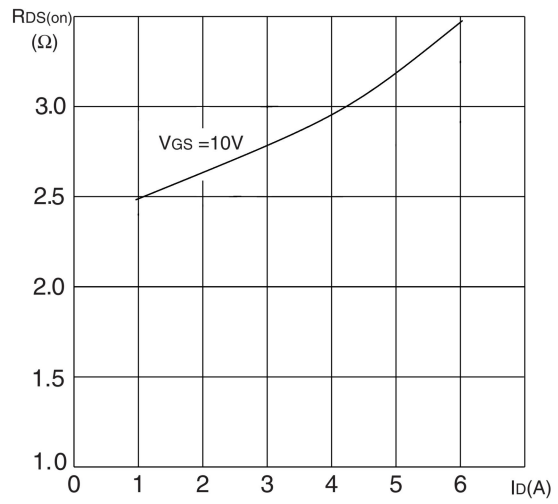
Electrical characteristics



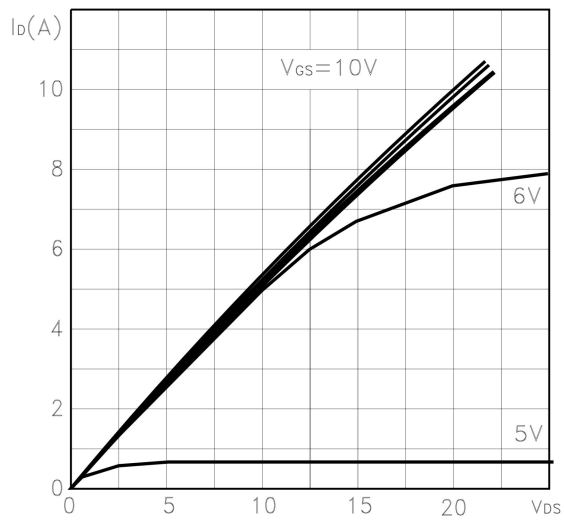
Normalized BVDSS vs temperature



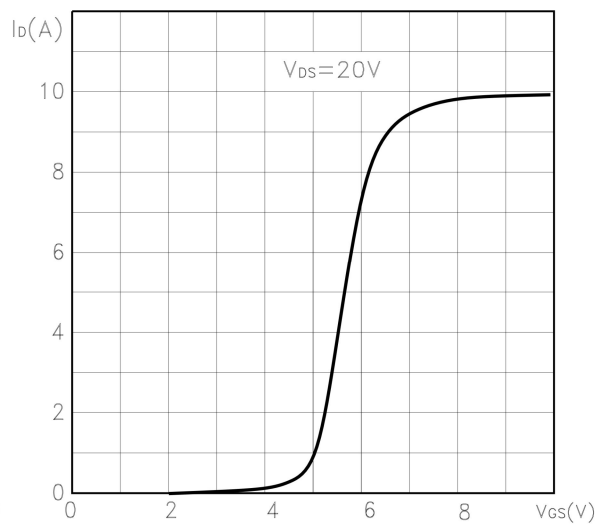
Static drain-source on resistance



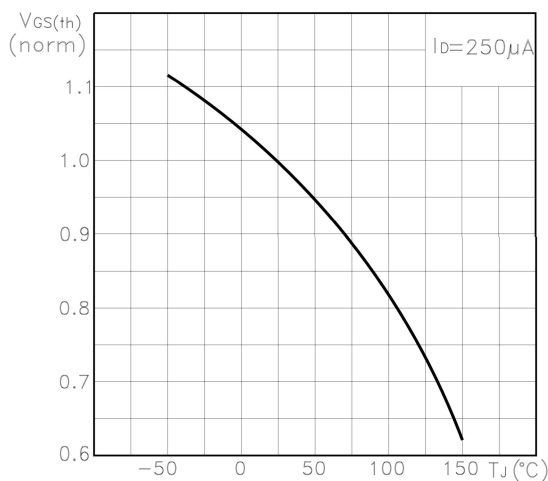
Output characteristics



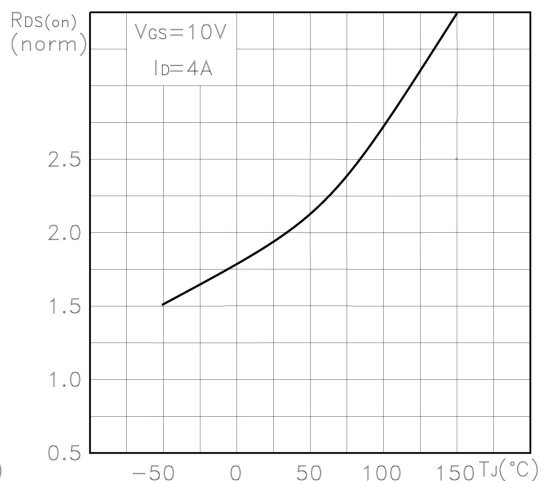
Transfer characteristics



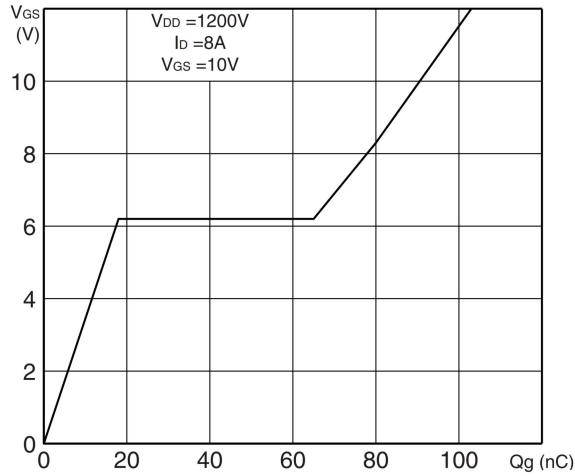
Normalized gate threshold voltage vs temperature



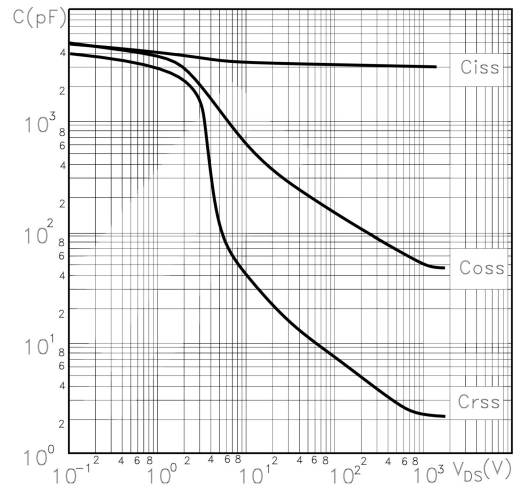
Normalized on resistance vs temperature



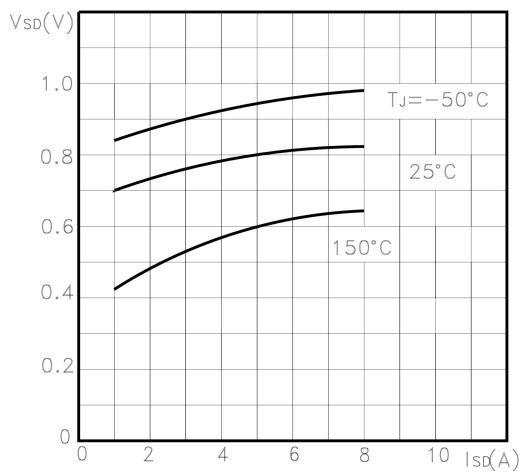
Gate charge vs gate-source voltage



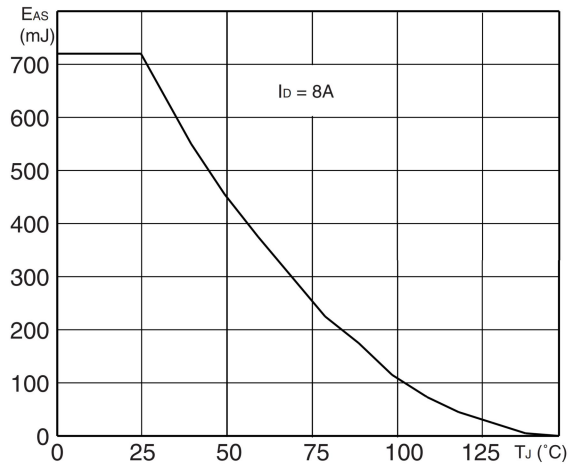
Capacitance variations



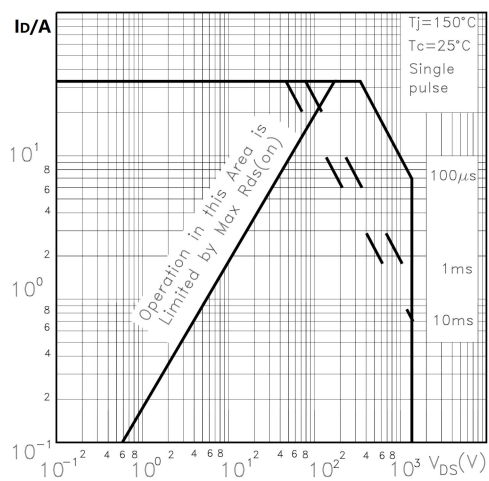
Source-drain diode forward characteristics



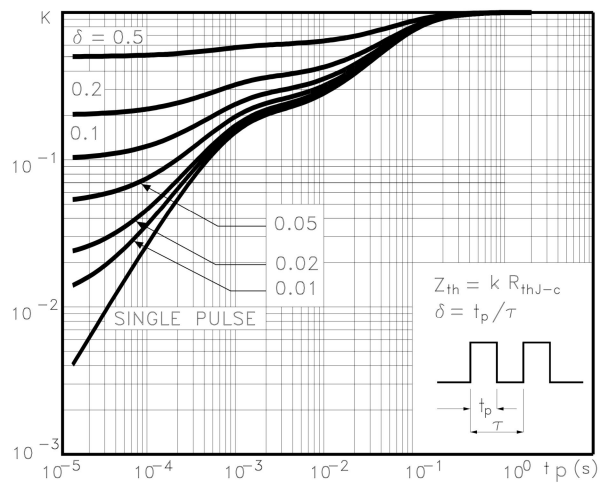
Maximum avalanche energy vs temperature



Safe operating area



Thermal impedance



Package outline dimension

