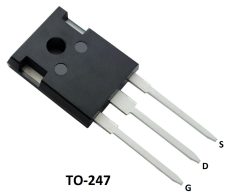
Features

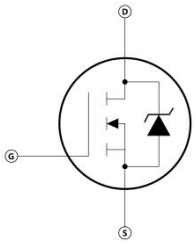
- 100% avalanche tested
- Avalanche ruggedness
- Gate charge minimized
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



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 °C	I_D	9	A
Drain current (continuous) at T_c = 100 °C		6	
Drain current (pulsed)	I_{DM}	40	
Total dissipation at T_C = 25 °C	P_{TOT}	125	W
Operating junction temperature	T_J	-55 to 150	℃
Storage temperature	T_{stg}		

Thermal data			
Parameter	**Symbol**	**Value**	**Unit**
Thermal resistance junction-case max	$R_{thj\text{-}case}$	2	W/℃
Thermal resistance junction-ambient max	$R_{thj\text{-}amb}$	62	
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 (Tvj = 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	-	2.2	3.2	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		

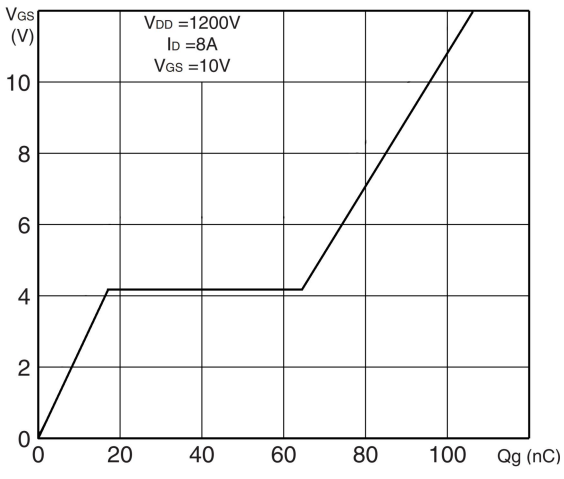
Switching times						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Turn-on delay time	$t_{d(on)}$	V_{DD} = 750 V, I_D = 4 A,		50		ns

Rise time	t_r	R_G = 4.7 Ω, V_{GS} = 10 V		16		
Turn-off-delay time	$t_{d(off)}$			100		
Fall time	t_f			80		

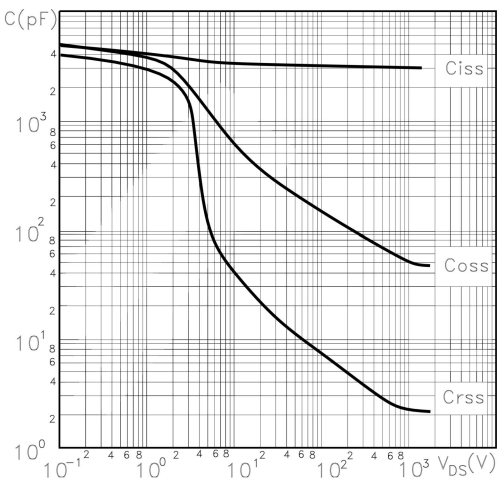
Source drain diode						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Source-drain current	I_{SD}			8		A
Source-drain current (pulsed)	I_{SDM}			40		
Forward on voltage	V_{SD}	I_{SD}= 8 A, V_{GS}= 0		1.5		V
Reverse recovery time	t_{rr}	I_{SD}= 8A, di/dt=100A/µs V_{DD}= 60 V		950		ns
Reverse recovery charge	Q_{rr}			9		µC
Reverse recovery current	I_{RRM}			20		A
Reverse recovery time	t_{rr}	S_D=8A, 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

Electrical characteristics

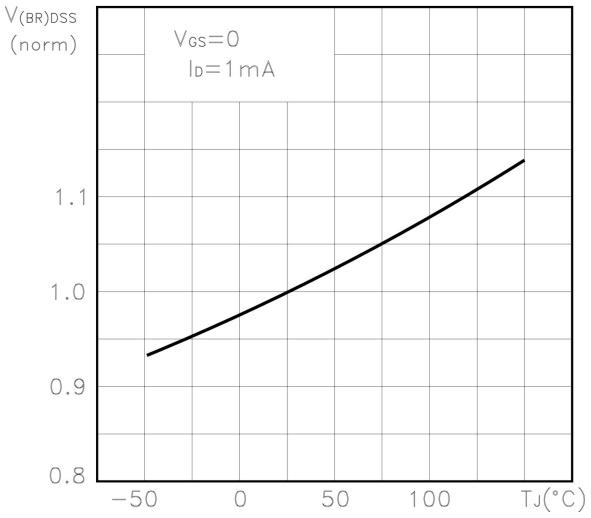
Gate charge vs gate-source voltage



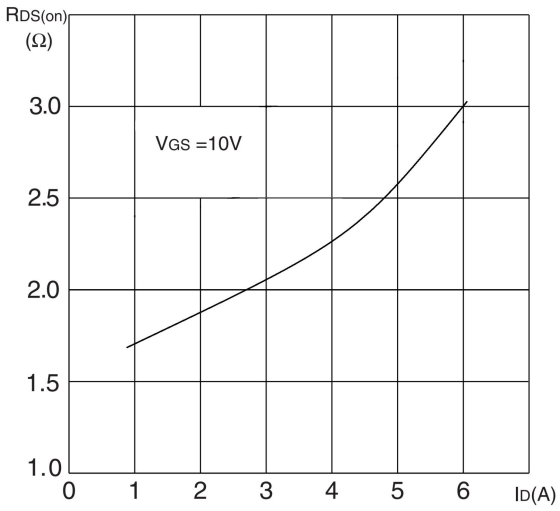
Capacitance variations



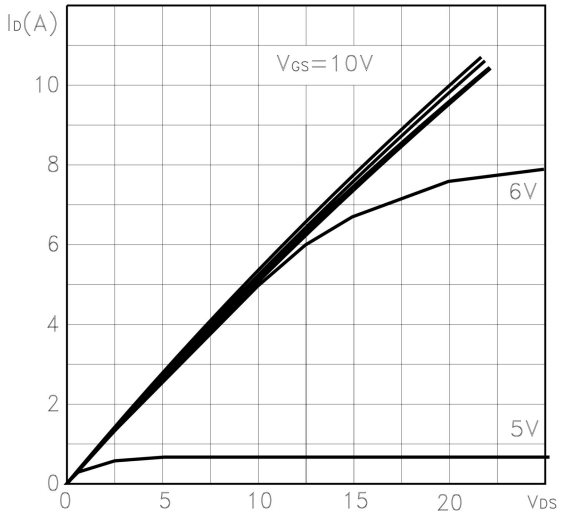
Normalized BVDSS vs temperature



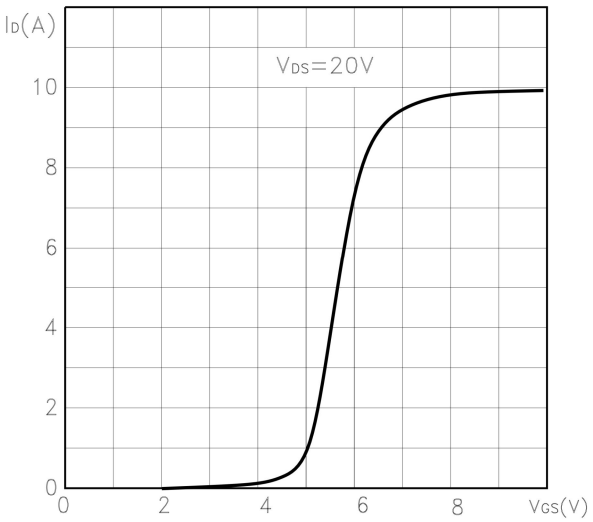
Static drain-source on resistance



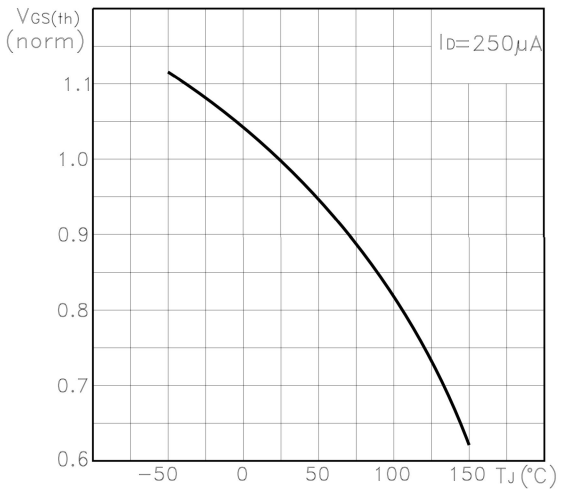
Output characteristics



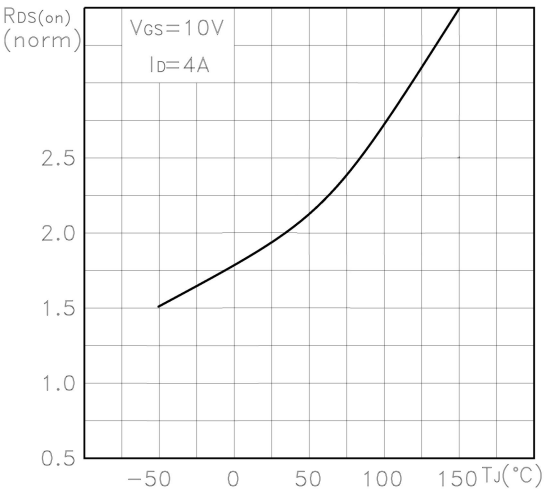
Transfer characteristics



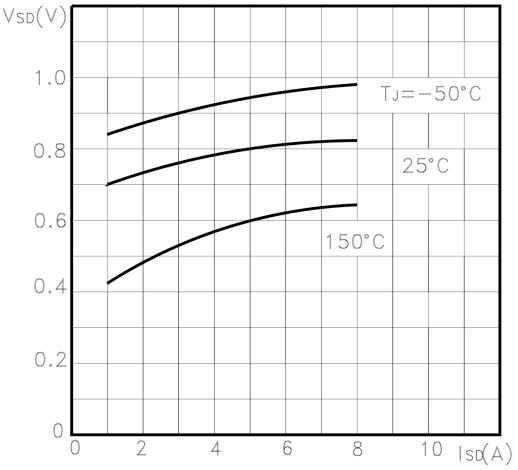
Normalized gate threshold voltage vs temperature



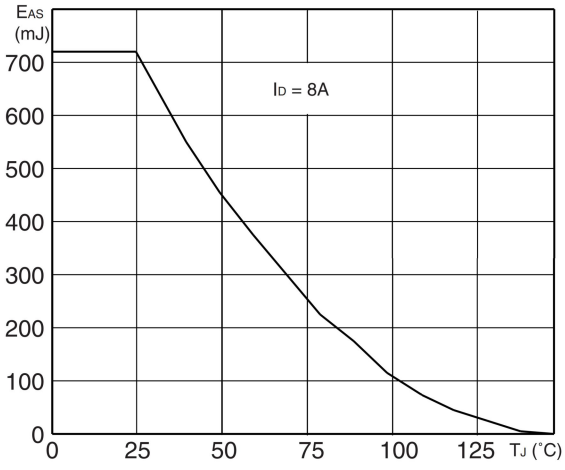
Normalized on resistance vs temperature



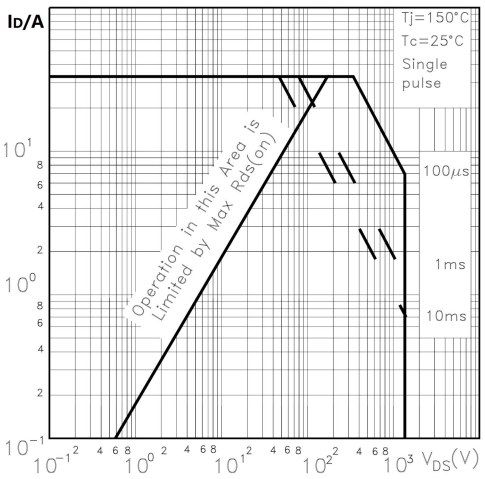
Source-drain diode forward characteristics



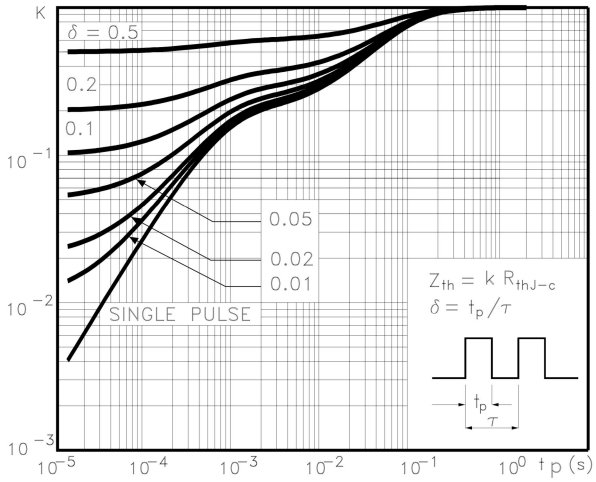
Maximum avalanche energy vs temperature



Safe operating area



Thermal impedance



Package outline dimension