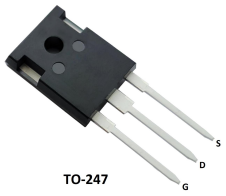
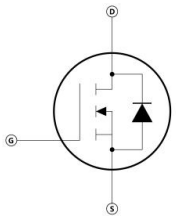
Features

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



Applications

- PV Inverter
- Switching applications



Electrical ratings

Absolute maximum ratings			
Parameter	**Symbol**	**Value**	**Unit**
Drain-source voltage (V_{GS} = 0)	V_{DS}	1650	V
Gate- source voltage	V_{GS}	± 30	
Drain current (continuous) at T_C = 25 °C	I_D	12	A
Drain current (continuous) at T_c = 100 °C		9	
Drain current (pulsed)	I_{DM}	48	
Total dissipation at T_C = 25 °C	P_D	120	W
Derating factor		2.56	W/℃
Operating junction temperature	T_J	-55 ~ 150	℃
Storage temperature	T_{stg}		
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	1650			V
Zero gate voltage drain current (V_{GS} = 0)	I_{DSS}	V_{DS} = Max rating V_{DS}=Max rating, T_C=125 °C			100 1000	μA
Gate-body leakage current (V_{DS} = 0)	I_{GSS}	V_{GS} = ± 30 V			±200	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 = 1A	-	2.7	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		4000		pF
Output capacitance	C_{oss}			390		
Reverse transfer capacitance	C_{rss}			33		
Total gate charge	Q_g	V_{DD}=1200V,I_D=12A V_{GS}=10V		42		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 = 6 A, R_G = 4.7 Ω, V_{GS} = 10 V		50		ns
Rise time	t_r			16		
Turn-off-delay time	$t_{d(off)}$			100		
Fall time	t_f			80		

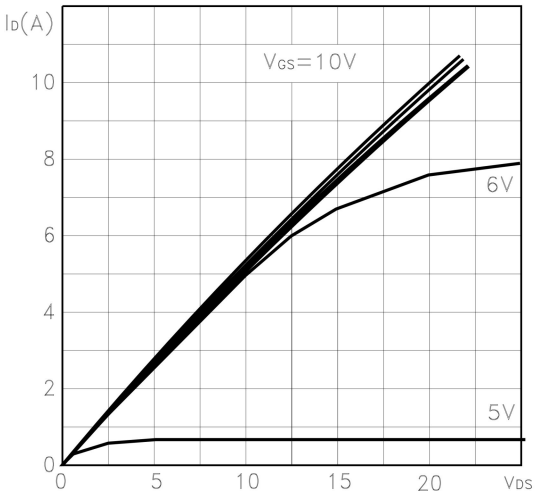
Source drain diode						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Source-drain current	I_{SD}			12		A
Source-drain current (pulsed)	I_{SDM}			48		
Forward on voltage	V_{SD}	I_{SD}= 12 A, V_{GS}= 0		1.5		V
Reverse recovery time	t_{rr}	I_{SD}= 12A, di/dt=100A/μs V_{DD}= 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=12A, 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

Thermal data			
Parameter	**Symbol**	**Value**	**Unit**
Thermal resistance junction-case max	$R_{thj\text{-}case}$	1	W/℃

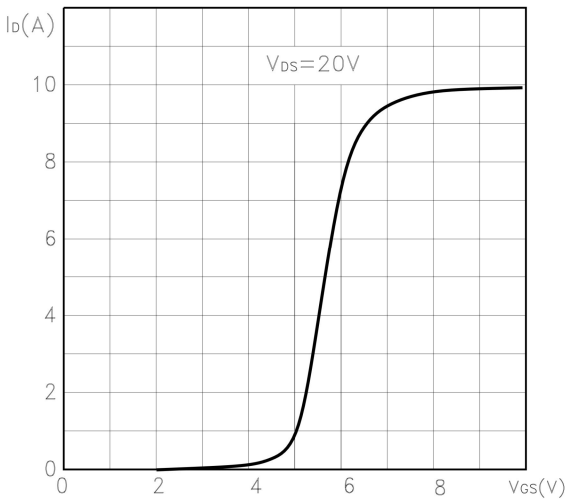
Thermal resistance junction-ambient max	$R_{thj\text{-}amb}$	50	
Maximum lead temperature for soldering purpose	T_J	300	

Electrical characteristics

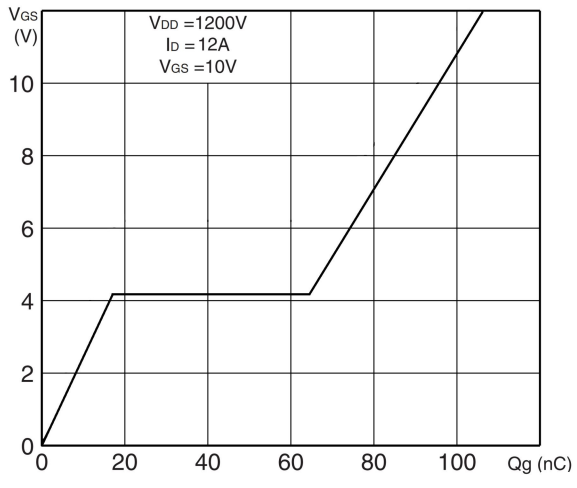
Output characteristics



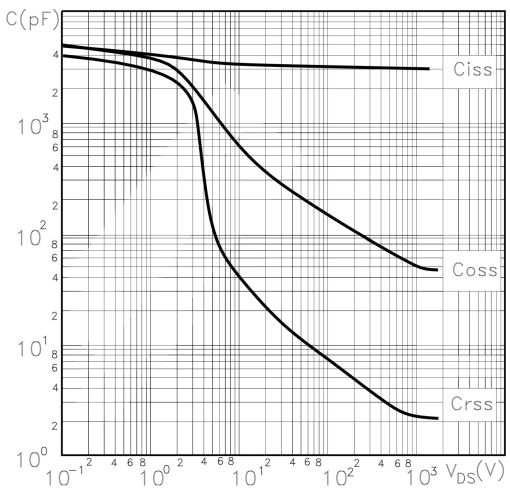
Transfer characteristics



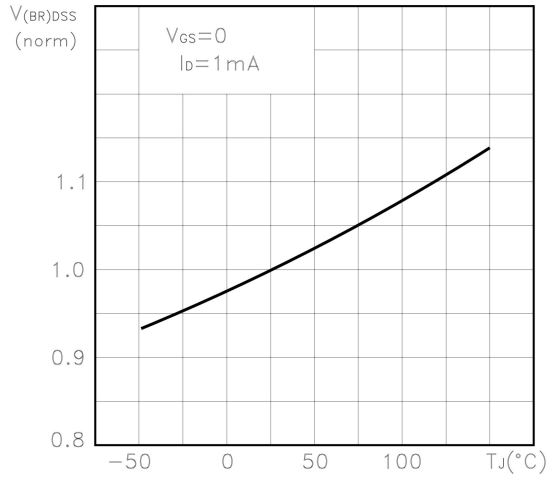
Gate charge vs gate-source voltage



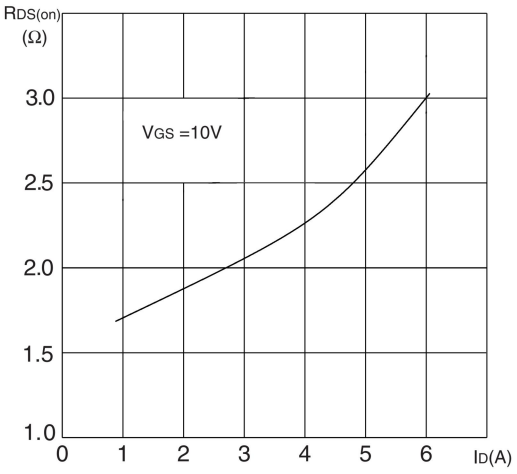
Capacitance variations



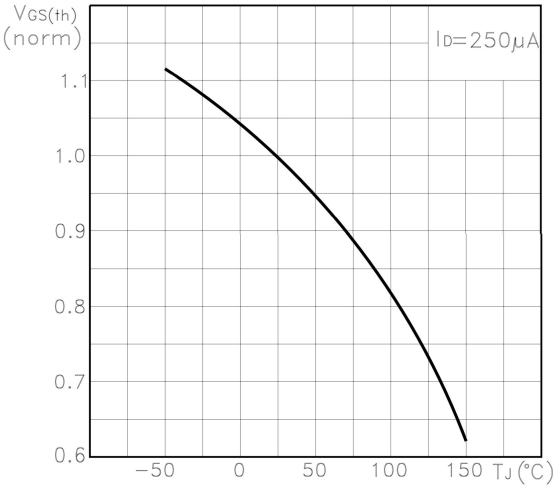
Normalized BVDSS vs temperature



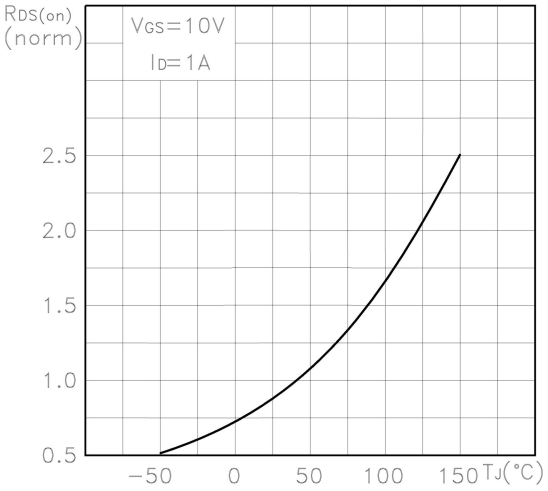
Static drain-source on resistance



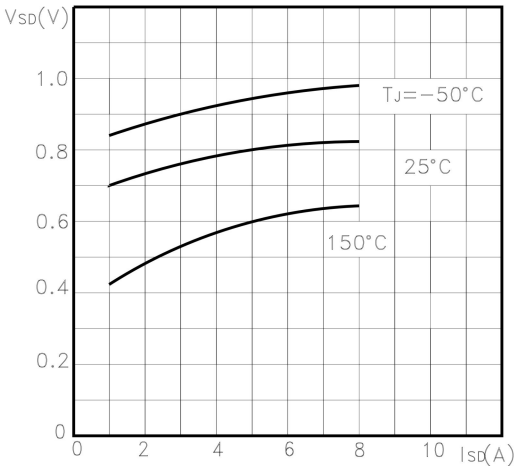
Normalized gate threshold voltage vs temperature



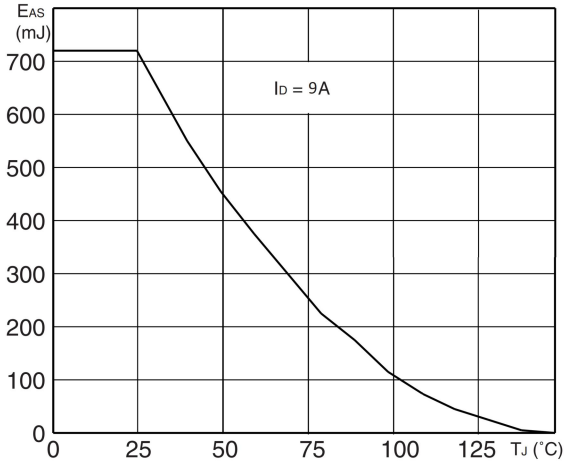
Normalized on resistance vs temperature



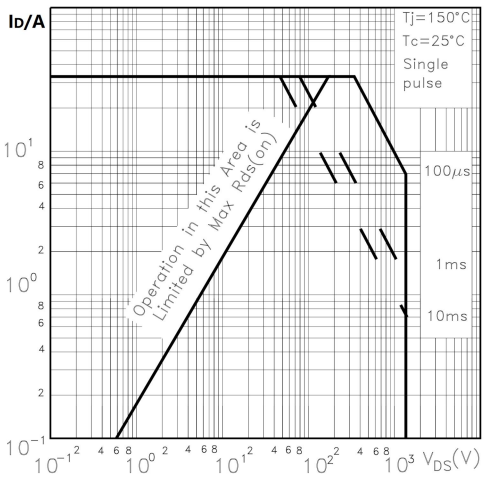
Source-drain diode forward characteristics



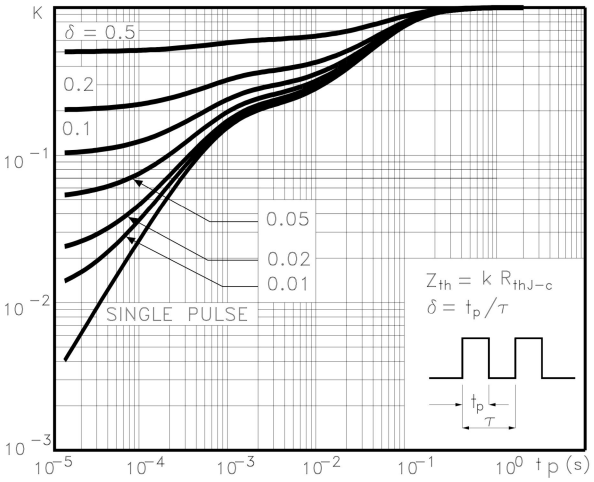
Maximum avalanche energy vs temperature



Safe operating area



Thermal impedance



Package outline dimension