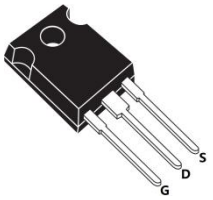
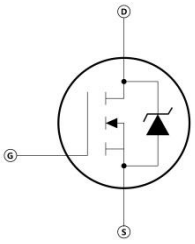
Features

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



Applications

- UPS
- Switching applications



Electrical ratings

Absolute maximum ratings			
Parameter	**Symbol**	**Value**	**Unit**
Drain-source voltage (V_{GS} = 0)	V_{DS}	1700	V
Gate- source voltage	V_{GS}	± 30	
Drain current (continuous) at T_C = 25 °C	I_D	5	A
Drain current (continuous) at T_C = 100 °C		3	
Drain current (pulsed)	I_{DM}	12	
Total dissipation at T_C = 25 °C	P_{TOT}	160	W
Derating factor		2.56	W/℃
Operating junction temperature	T_J	-55 to 150	℃
Storage temperature	T_{stg}		

Thermal data			
Parameter	**Symbol**	**Value**	**Unit**
Thermal resistance junction-case max	$R_{thj\text{-}case}$	0.75	W/℃
Thermal resistance junction-ambient max	$R_{thj\text{-}amb}$	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 (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	1700			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 = 3A		5.3	9	Ω

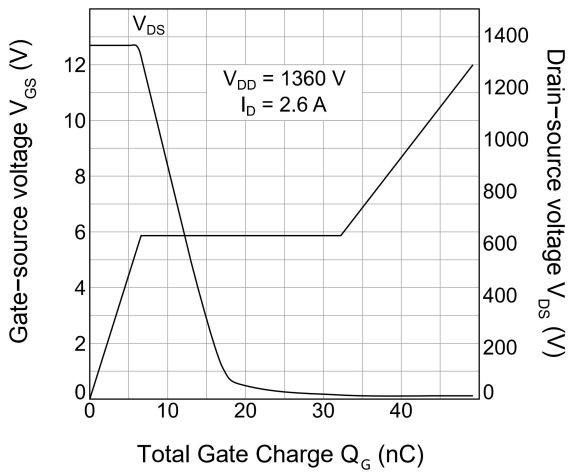
Dynamic						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Input capacitance	C_{iss}	V_{DS}=100V,f=1MHz, V_{GS}=0V		990		pF
Output capacitance	C_{oss}			42		
Reverse transfer capacitance	C_{rss}			5		
Gate input resistance	R_g	f=1MHz Gate DC Bias=0 Test signal level=20mV open drain		3.3		Ω
Total gate charge	Q_g	V_{DD}=1200V,I_D=8A V_{GS}=10V		38		nC
Gate-source charge	Q_{gs}			7		
Gate-drain charge	Q_{gd}			22		

Switching times						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Turn-on delay time	$t_{d(on)}$	V_{DD} = 850 V, I_D = 3A, R_G = 4.7 Ω, V_{GS} = 10 V		28		ns
Rise time	t_r			9		
Turn-off-delay time	$t_{d(off)}$			46		
Fall time	t_f			55		

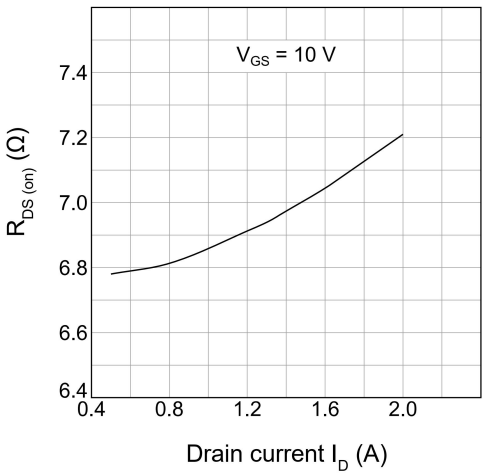
Source drain diode						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Source-drain current	I_{SD}			2.8		A
Source-drain current (pulsed)	I_{SDM}			11		
Forward on voltage	V_{SD}	I_{SD}= 2.8 A, V_{GS}= 0		1.5		V
Reverse recovery time	t_{rr}	I_{SD}= 2.8A, di/dt= 100A/μs V_{DD}= 60 V		1.62		μ S
Reverse recovery charge	Q_{rr}			6		μ C
Reverse recovery current	I_{RRM}			8		A
Reverse recovery time	t_{rr}	S_D=2.8A, di/dt=100A/μs V_{DD}= 60V T_J=150°C		2.32		μ S
Reverse recovery charge	Q_{rr}			8.5		μ C
Reverse recovery current	I_{RRM}			8.8		A

Electrical characteristics

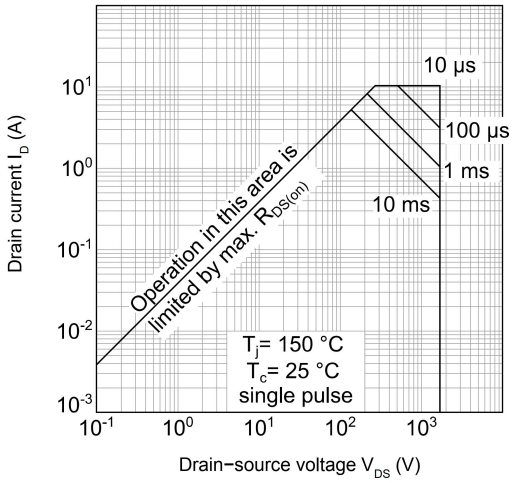
Gate charge vs gate-source voltage



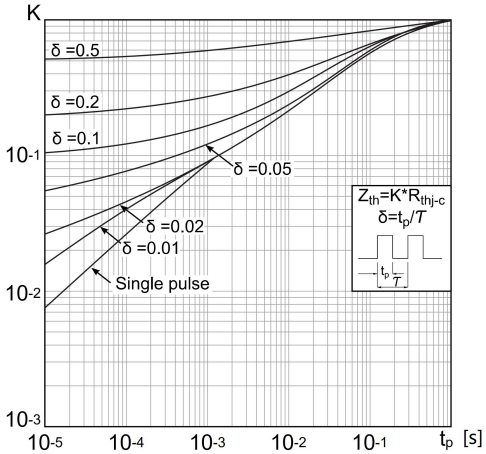
Static drain-source on-resistance



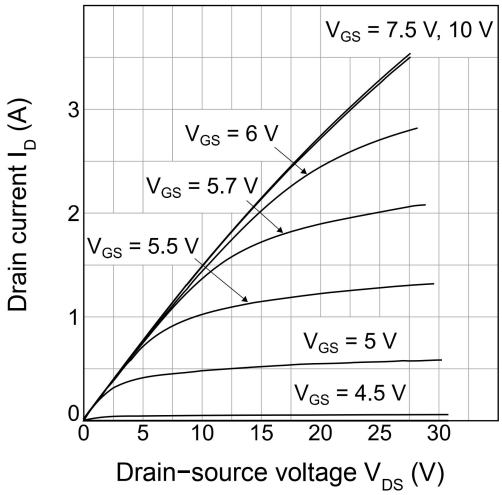
Safe operating area



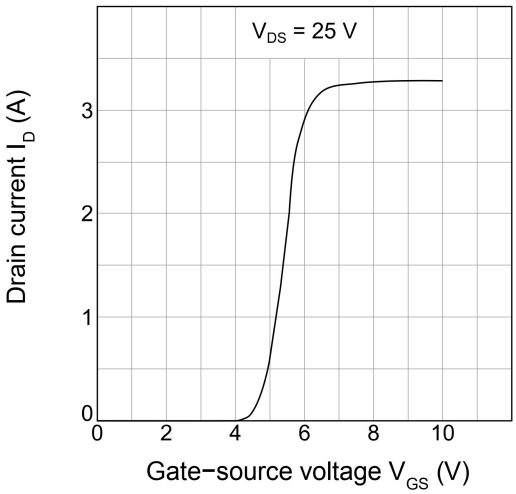
Thermal impedance



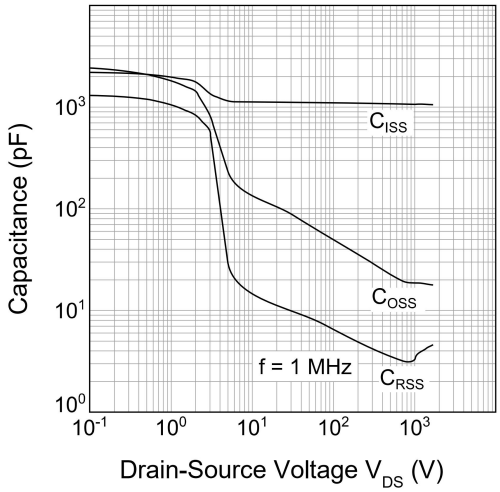
Output characteristics



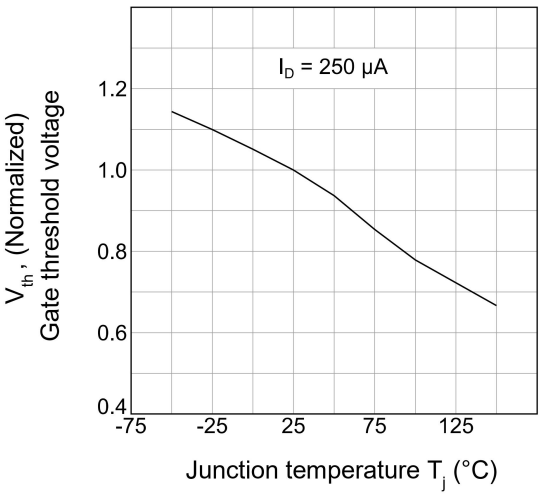
Transfer characteristics



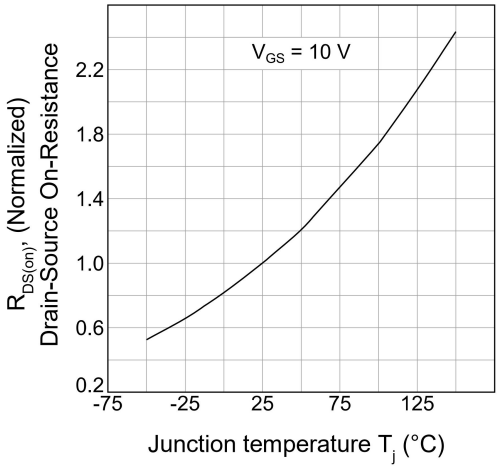
Capacitance variations



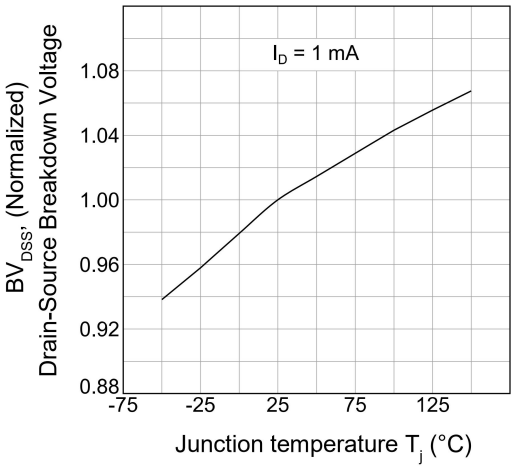
Normalized gate threshold voltage vs temperature



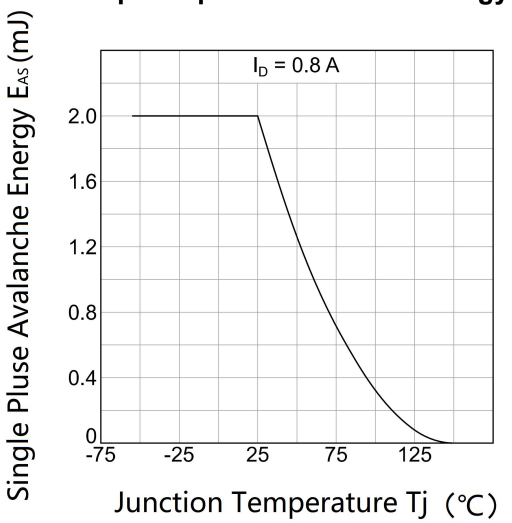
Normalized on-resistance vs temperature



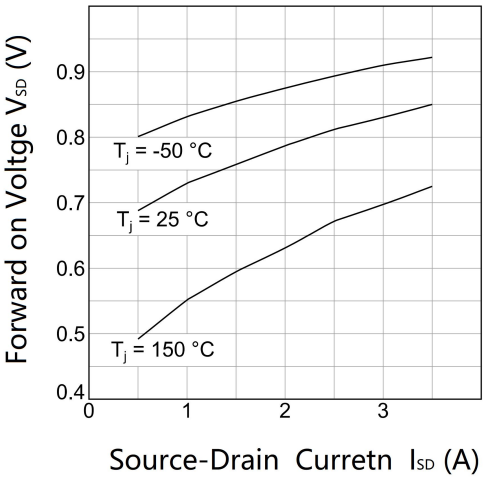
Normalized V(BR)DSS vs temperature



Output capacitance stored energy

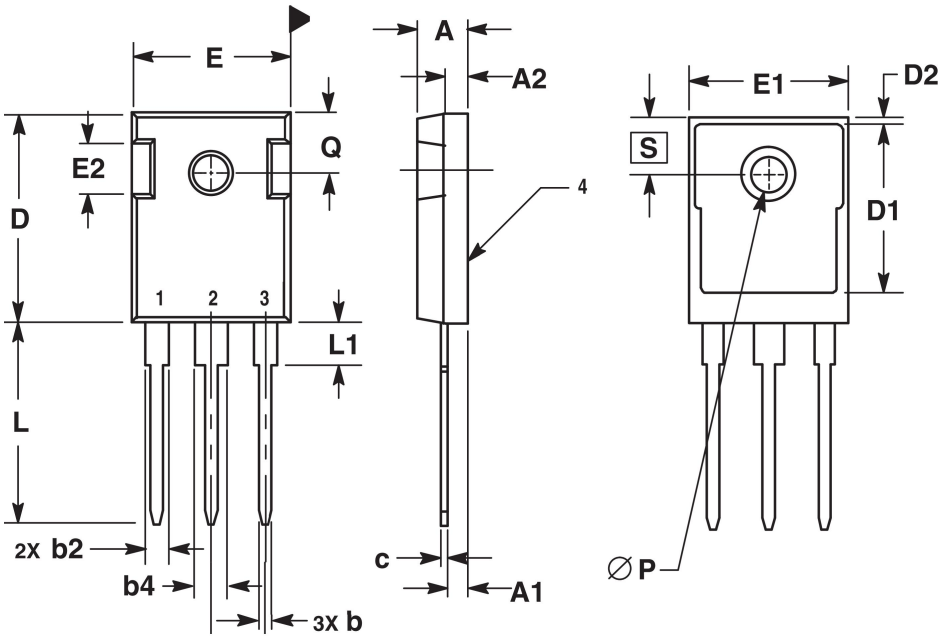


Source- drain diode forward characteristics



Package outline dimension

TO-247



Symbol	Min	Max	Unit
A	4.7	5.31	mm
A1	2.21	2.59	
A2	1.5	2.49	
b	1	1.4	
b2	1.65	2.39	
b4	2.59	3.43	
c	0.38	0.89	
D	20.8	21.46	
D1	13.08	-	
D2	0.51	1.35	
E	15.49	16.26	
E1	13.46	-	
E2	4.32	5.49	
e	5.46BSC		
L	19.81	20.32	
L1	-	4.5	
P	3.56	3.66	
Q	5.38	6.2	
S	6.15BSC		