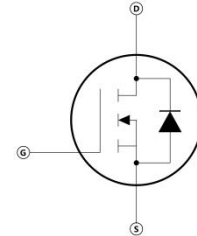
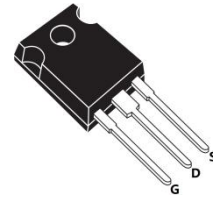


Features

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



Applications

- Welder
- UPS
- PV Inverter
- Switching applications

Electrical ratings

Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DS}	1700	V
Transient Gate- source voltage	V_{GS}	± 30	
Continuous Gate- source voltage	V_{GS}	± 20	
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}	36	
Avalanche current, repetitive or not-repetitive (pulse width limited by T_J max)	I_{AR}	9	A
Single pulse avalanche energy (starting $T_J = 25\text{ }^{\circ}\text{C}$, $I_D = I_{AR}$, $V_{DD} = 50\text{ V}$)	E_{AS}	83	mJ
Total dissipation at $T_C = 25\text{ }^{\circ}\text{C}$	P_{TOT}	125	W
Derating factor		2.63	W/ $^{\circ}\text{C}$
Operating junction temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_L	300	
Insulation withstand voltage (RMS) from all three leads to external heat sink ($t=1\text{ s}$; $T_C=25\text{ }^{\circ}\text{C}$)	V_{ISO}	3.5	KV

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

On /off states						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}$, $V_{GS} = 0$	1700			V

breakdown voltage						
Zero gate voltage drain current ($V_{GS} = 0$)	I_{DSS}	$V_{DS} = \text{Max rating}$ $V_{DS} = \text{Max rating}, T_C = 125^\circ\text{C}$			10 500	μA
Gate-body leakage current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 20\text{ V}$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	3	4	5	V
Static drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 1\text{A}$	-	4.26	6.0	Ω

Dynamic

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward transconductance	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 4\text{A}$		5.6		S
Input capacitance	C_{iss}	$V_{DS} = 25\text{V}, f = 1\text{MHz}, V_{GS} = 0$		4200		pF
Output capacitance	C_{oss}			450		
Reverse transfer capacitance	C_{rss}			40		
Total gate charge	Q_g	$V_{DD} = 1500\text{V}, I_D = 9\text{A}$ $V_{GS} = 10\text{V}$		82		nC
Gate-source charge	Q_{gs}			17		
Gate-drain charge	Q_{gd}			55		

Switching times

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 850\text{ V}, I_D = 4\text{ A},$ $R_G = 4.7\ \Omega, V_{GS} = 10\text{ V}$		150		ns
Rise time	t_r			26		
Turn-off-delay time	$t_{d(off)}$			130		
Fall time	t_f			90		

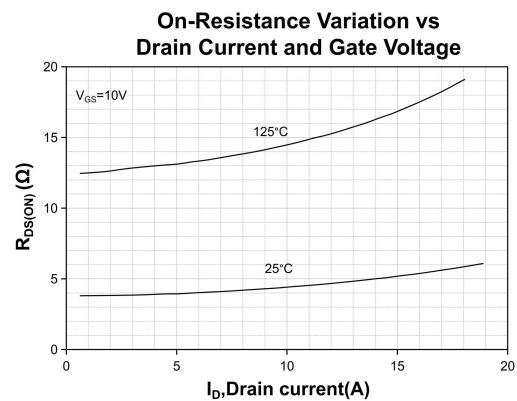
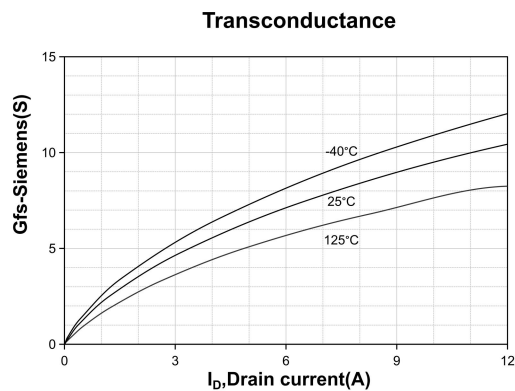
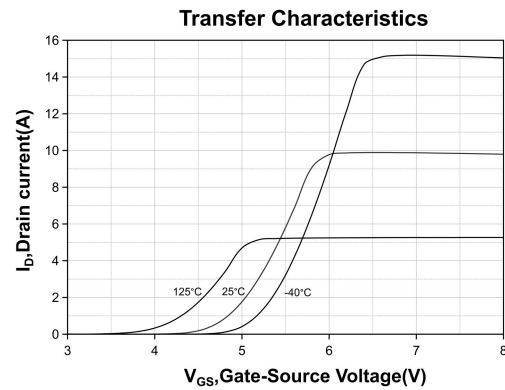
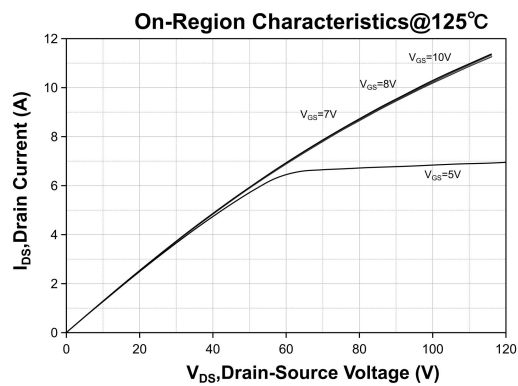
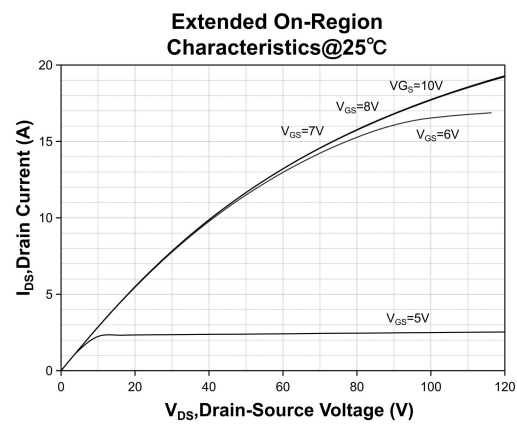
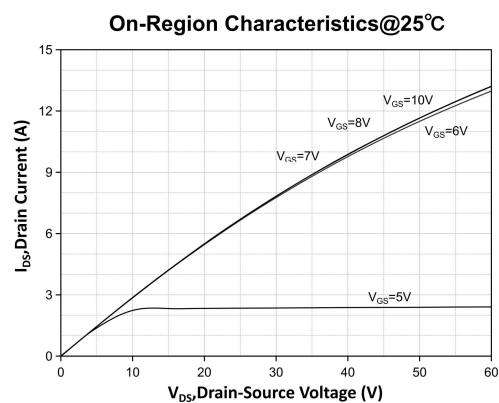
Source drain diode

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source-drain current	I_{SD}			9		A
Source-drain current (pulsed)	I_{SDM}			36		
Forward on voltage	V_{SD}	$I_{SD} = 1\text{ A}, V_{GS} = 0$		0.75	1.2	V
Reverse recovery time	t_{rr}	$I_{SD} = 9\text{A}, di/dt = 100\text{A}/\mu\text{s}$ $V_{DD} = 60\text{ V}$		800		ns
Reverse recovery charge	Q_{rr}			9		μC
Reverse recovery current	I_{RRM}			4.5		A
Reverse recovery time	t_{rr}	$S_D = 9\text{A}, di/dt = 100\text{A}/\mu\text{s}$ $V_{DD} = 60\text{V } T_J = 150^\circ\text{C}$		750		ns
Reverse recovery charge	Q_{rr}			8.5		μC
Reverse recovery current	I_{RRM}			4.0		A

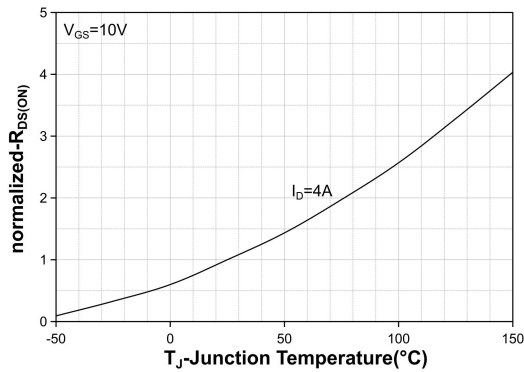
Thermal data

Parameter	Symbol	Value	Unit
Thermal resistance junction-case max	$R_{thj-case}$	1	°C/W
Thermal resistance junction-ambient max	$R_{thj-amb}$	50	

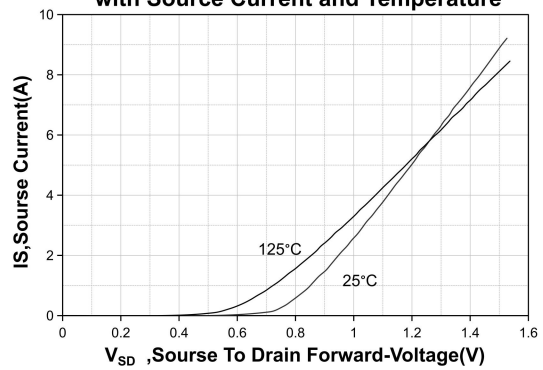
Electrical characteristics(curves)



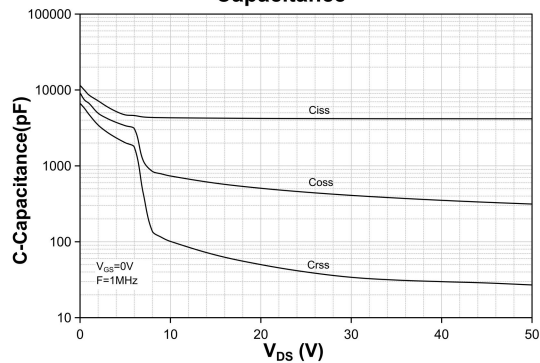
On-Resistance Variation vs Temperature



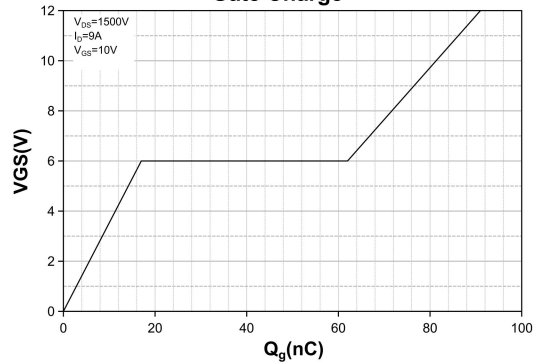
Body Diode Forward Voltage Variation with Source Current and Temperature



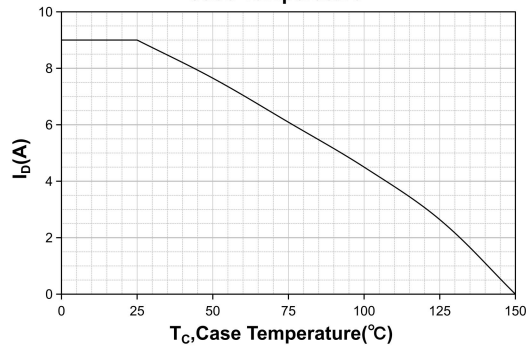
Capacitance



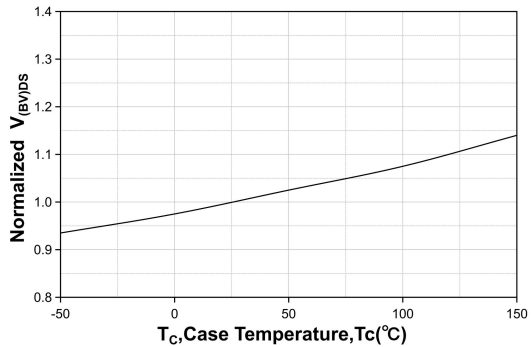
Gate Charge



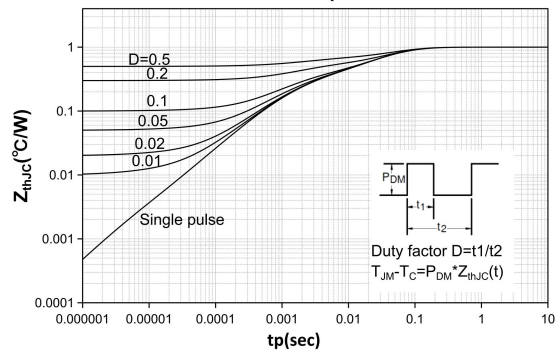
Maximum Drain Current vs Case Temperature



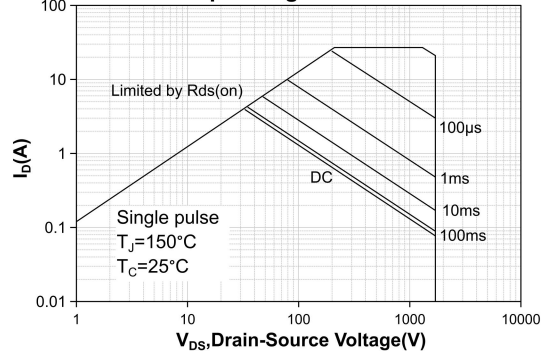
Normalized $V_{(BV)DS}$ vs temperature



Transient Thermal Response Curve



Safe Operating Area



Package outline dimension

