

N-Channel 100 V (D-S) MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (mΩ)(Typ.)	I _D (A) ^a	Q _g (Typ.)
100	18 at V _{GS} = 10 V	60	85 nC
	20 at V _{GS} = 4.5 V		

FEATURES

- DT-Trench Power MOSFET
- 100 % Rg and UIS tested
- Low Gate Charge

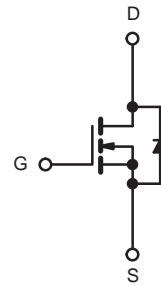
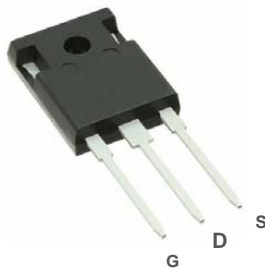


RoHS
COMPLIANT

APPLICATIONS

- Power Management
- Motor Drivers
- DC-DC Converters

TO-247 Pin Configuration



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C, unless otherwise noted)					
Parameter		Symbol	Limit	Unit	
Drain-Source Voltage		V _{DS}	100	V	
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 175 °C)	T _C = 25 °C	I _D	60	A	
	T _C = 100 °C		44.8		
Pulsed Drain Current ^a		I _{DM}	240		
Single Pulse Avalanche Energy		E _{AS}	756		
Maximum Power Dissipation ^b	T _C = 25 °C	P _D	206	W	
	T _C = 100 °C		103		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 175	°C	
Soldering Recommendations (Peak Temperature)			260		
THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	t ≤ 10 s	R _{thJA}	-	30	°C/W
Maximum Junction-to-Case (Drain) ^{c,d}	Steady State	R _{thJC}	-	0.73	

Notes:

- T_C = 25 °C.
- Surface mounted on 1" x 1" FR4 board.
- t = 10 s.
- Maximum under steady state conditions is 0.8 °C/W.

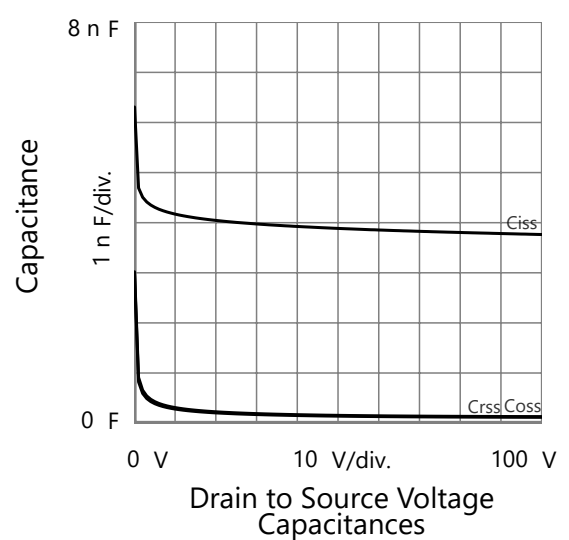
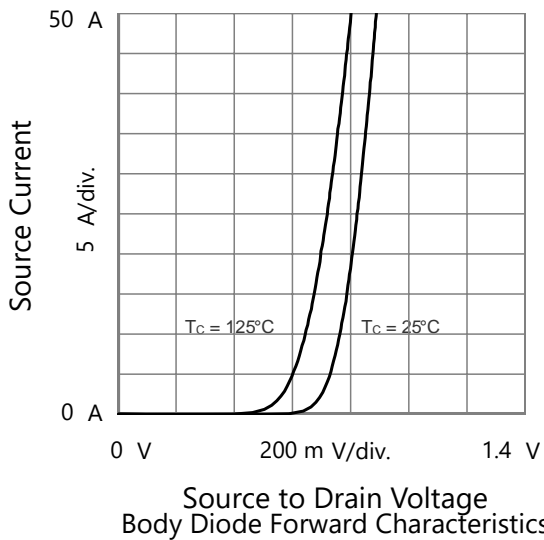
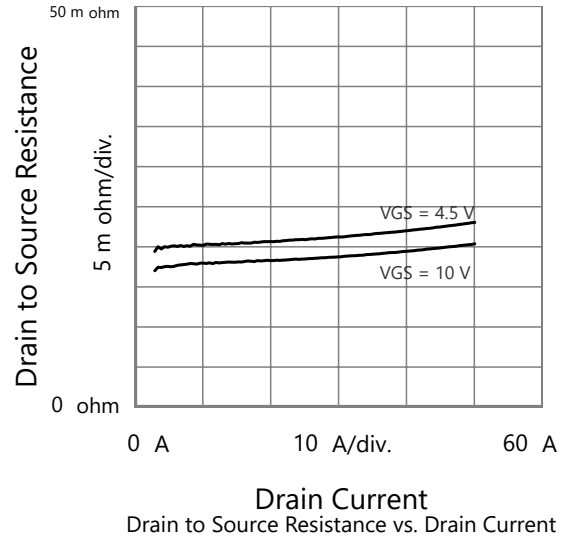
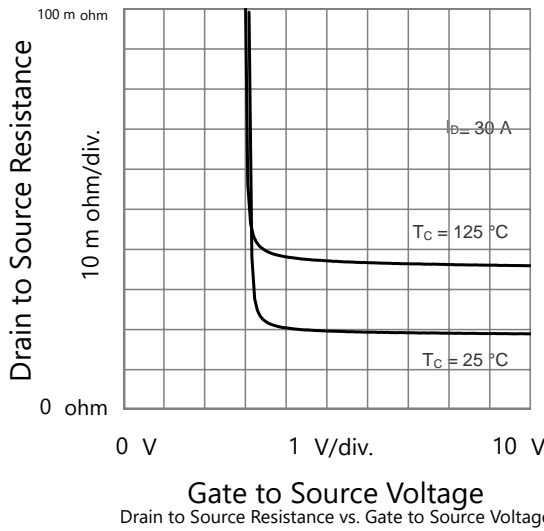
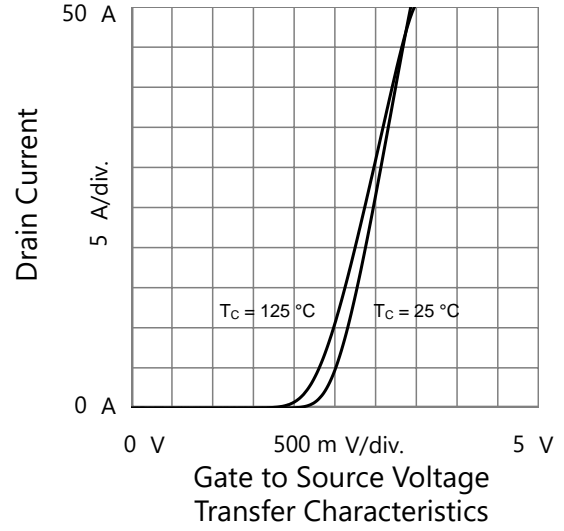
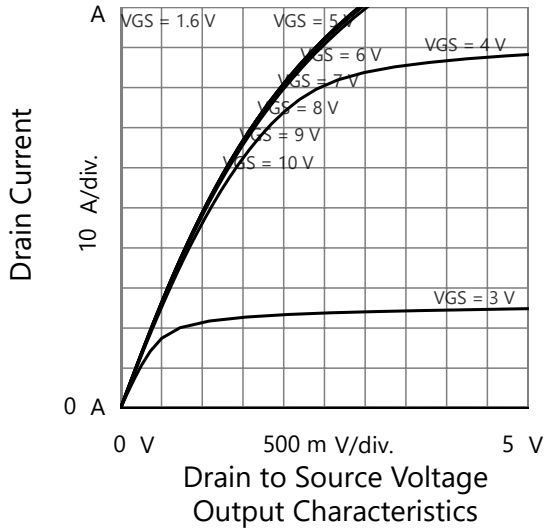
SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1	-	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
		$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$	-	-	10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 10\text{ V}, V_{GS} = 10\text{ V}$	200	-	-	A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 30\text{ A}$	-	18	22	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 30\text{ A}$	-	20	25	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 5\text{ V}, I_D = 30\text{ A}$	-	35	-	S
Dynamic ^b						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}, f = 1\text{ MHz}$	-	3840	-	pF
Output Capacitance	C_{oss}		-	140	-	
Reverse Transfer Capacitance	C_{rss}		-	104	-	
Total Gate Charge ^c	Q_g	$V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 30\text{ A}$	-	85	-	nC
Gate-Source Charge ^c	Q_{gs}		-	36	-	
Gate-Drain Charge ^c	Q_{gd}		-	27	-	
Gate Resistance	R_g	$f = 1\text{ MHz}$	-	1.6	-	Ω
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 50\text{ V}, R_g = 3\text{ }\Omega,$ $V_{GEN} = 10\text{ V}$	-	85	-	ns
Rise Time ^c	t_r		-	153	-	
Turn-Off Delay Time ^c	$t_{d(off)}$		-	180	-	
Fall Time ^c	t_f		-	179	-	
Drain-Source Body Diode Ratings and Characteristics ^b ($T_C = 25\text{ }^\circ\text{C}$)						
Continuous Source Current	I_S	$T_C = 25\text{ }^\circ\text{C}$	-	-	60	A
Pulsed Source Current	I_{SM}		-	-	240	A
Forward Voltage ^a	V_{SD}	$I_F = 30\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 30\text{ A}, di/dt = 500\text{ A}/\mu\text{s}$	-	178	-	ns
Reverse Recovery Charge	Q_{rr}		-	945	-	nC

Notes

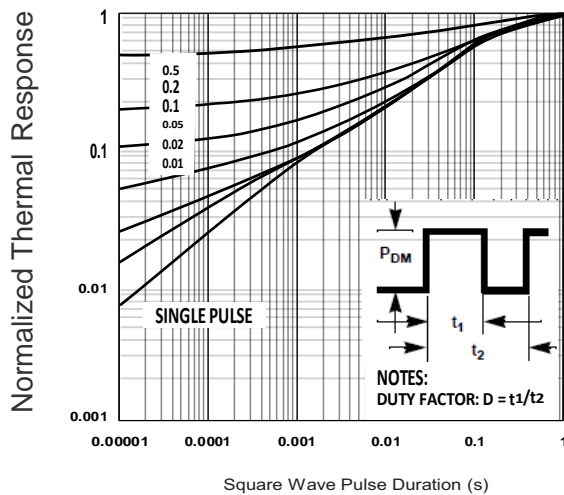
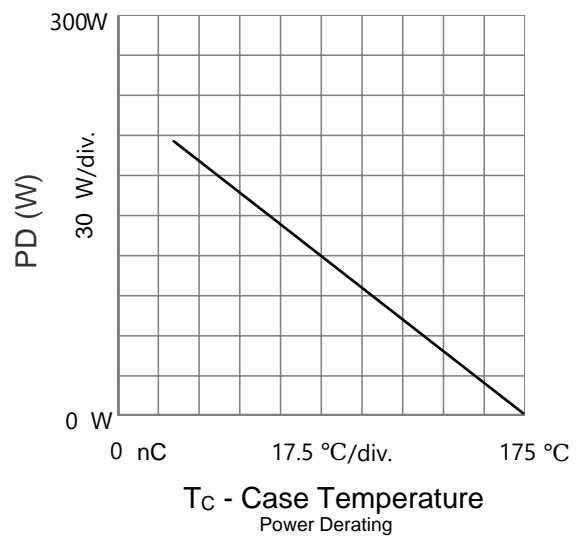
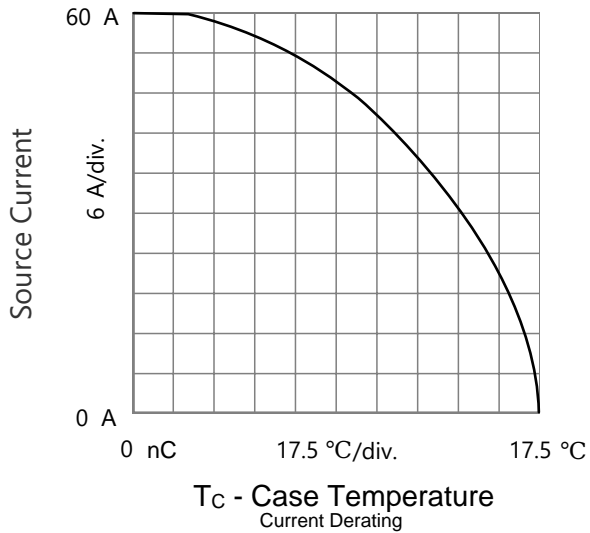
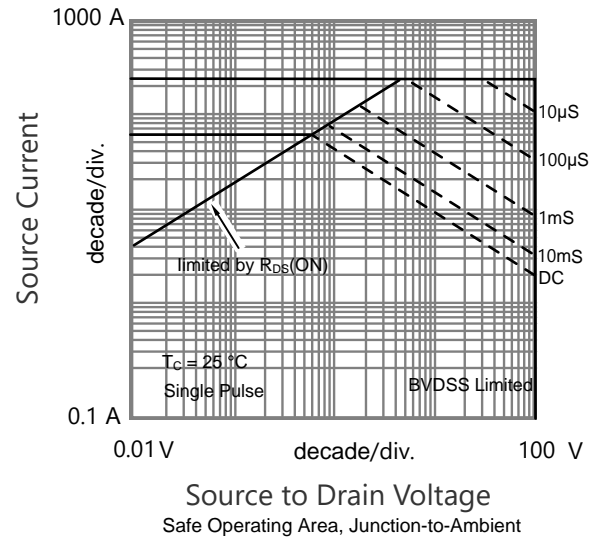
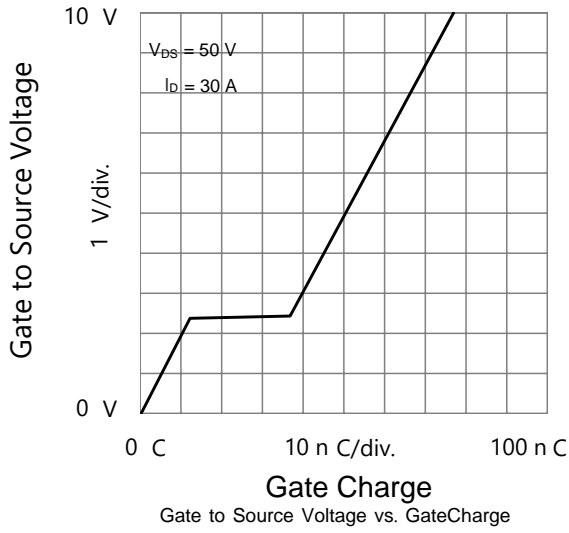
- Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.
- Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)



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