

P-Channel 100 V (D-S) MOSFET

PRODUCT SUMMARY

V _{DS} (V)	R _{DS(on)} (mΩ)(Typ.)	I _D (A) ^a	Q _g (Typ.)
- 100	620 at V _{GS} = - 10 V	- 1	14 nC
	660 at V _{GS} = - 4.5 V		

FEATURES

- DT-Trench Power MOSFET
- 100 % R_g and UIS Tested
- Low Gate Charge



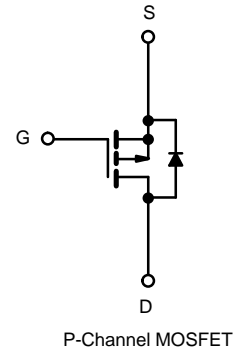
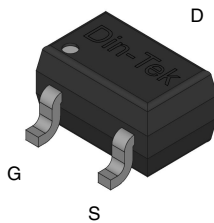
RoHS
COMPLIANT

APPLICATIONS

- Power management
- Video Montior

SOT-23 Pin Configuration

Top View



ABSOLUTE MAXIMUM RATINGS (T_C = 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 = 150° C) ^a	I _D	T _C = 25 °C	- 1
		T _C = 100 °C	- 0.6
Pulsed Drain Current ^b	I _{DM}	- 4	A
Single Avalanche Energy	E _{AS}	1	mJ
Maximum Power Dissipation ^c	P _D	T _C = 25 °C	0.62
		T _C = 100 °C	0.25
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to + 150	°C

THERMAL RESISTANCE RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-Ambient (PCB Mount) ^d	R _{thJA}	300	°C/W
Junction-to-Case (Drain)	R _{thJC}	201	

Notes

- Calculated continuous current based on maximum allowable junction temperature.
- Repetitive rating; pulse width limited by max. junction temperature.
- P_d is based on max. junction temperature, using junction-case thermal resistance.
- The value of R_{thJA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 °C.

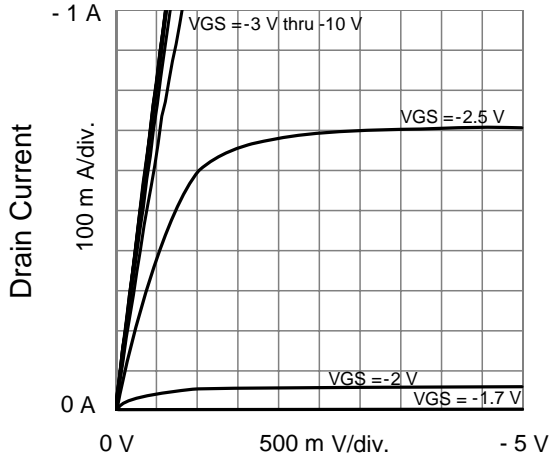
SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = -250\text{ }\mu\text{A}$	-100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	-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}	$V_{DS} = -80\text{ V}, V_{GS} = 0\text{ V}$	-	-	-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	$I_{D(on)}$	$V_{DS} \geq -5\text{ V}, V_{GS} = -10\text{ V}$	-1	-	-	A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -500\text{ mA}$	-	620	745	m Ω
		$V_{GS} = -4.5\text{ V}, I_D = -500\text{ mA}$	-	660	825	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5\text{ V}, I_D = -20\text{ A}$	-	2	-	S
Dynamic ^b						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = -25\text{ V}, f = 1\text{ MHz}$	-	592	-	μF
Output Capacitance	C_{oss}		-	19	-	
Reverse Transfer Capacitance	C_{rss}		-	13	-	
Total Gate Charge ^c	Q_g	$V_{DS} = -50\text{ V}, V_{GS} = -10\text{ V}, I_D = -0.5\text{ A}$	-	14	-	nC
Gate-Source Charge ^c	Q_{gs}		-	3	-	
Gate-Drain Charge ^c	Q_{gd}		-	2	-	
Gate Resistance	R_g	$f = 1\text{ MHz}$	-	11	-	Ω
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = -50\text{ V}, R_g = 3\text{ }\Omega,$ $I_D = -0.5\text{ A}, V_{GS} = -10\text{ V}$	-	7.8	-	ns
Rise Time ^c	t_r		-	15	-	
Turn-Off Delay Time ^c	$t_{d(off)}$		-	20	-	
Fall Time ^c	t_f		-	17	-	
Drain-Source Body Diode Ratings and Characteristics ^b ($T_C = 25\text{ }^\circ\text{C}$)						
Continuous Source-Drain Diode Current	I_S	$T_C = 25\text{ }^\circ\text{C}$	-	-	-1	A
Pulsed Current	I_{SM}		-	-	-4	A
Forward Voltage ^a	V_{SD}	$I_F = -0.5\text{ A}, V_{GS} = 0\text{ V}$	-	-	-1.2	V

Notes

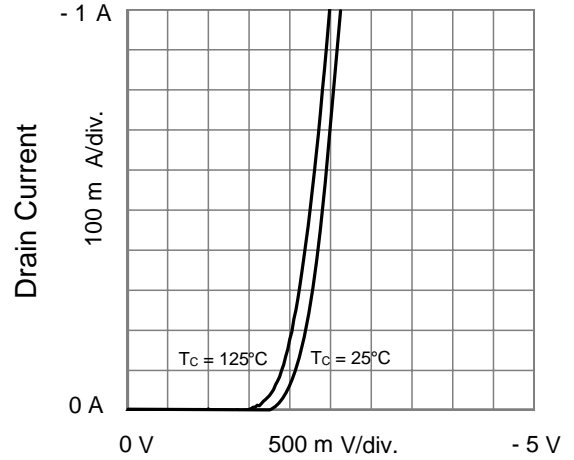
- a. Pulse test; pulse width $\leq 200\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
 b. Guaranteed by design, not subject to production testing.
 c. Independent of operating temperature.

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.

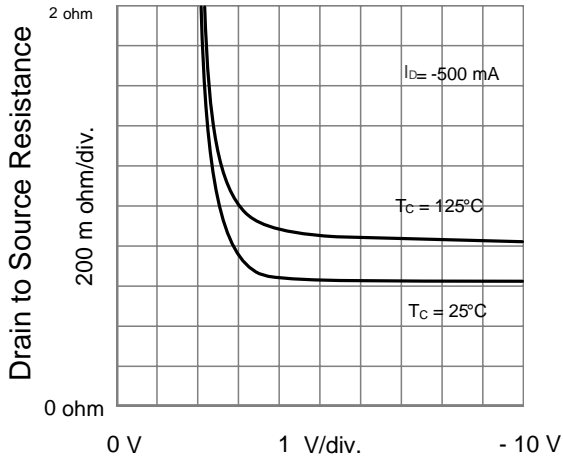
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Drain to Source Voltage
Output Characteristics

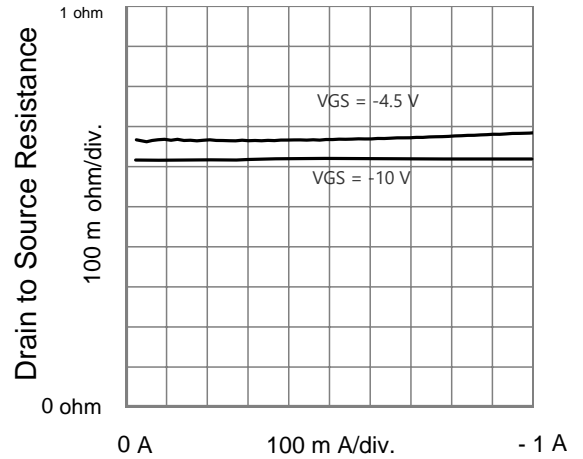


Gate to Source Voltage
Transfer Characteristics

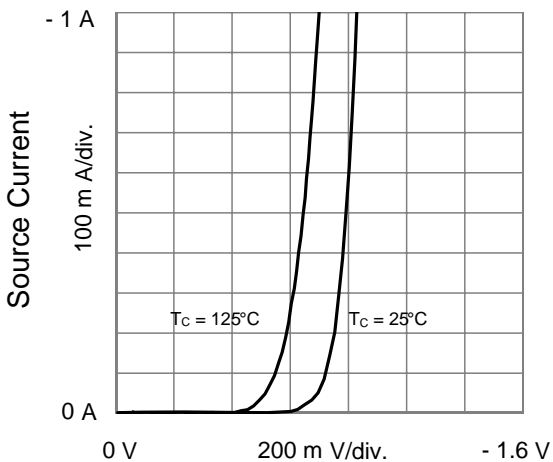


Gate to Source Voltage

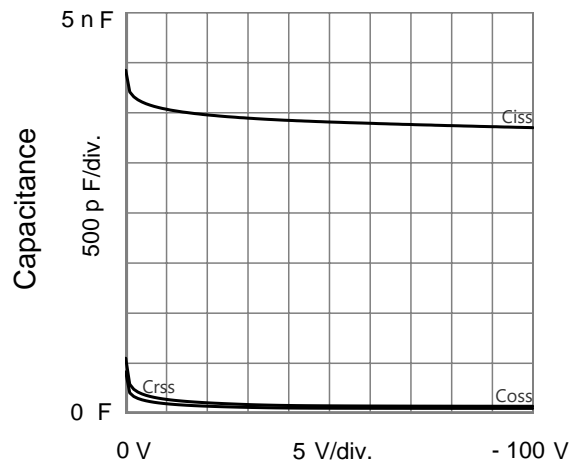
Drain to Source Resistance vs. Gate to Source Voltage



Drain Current

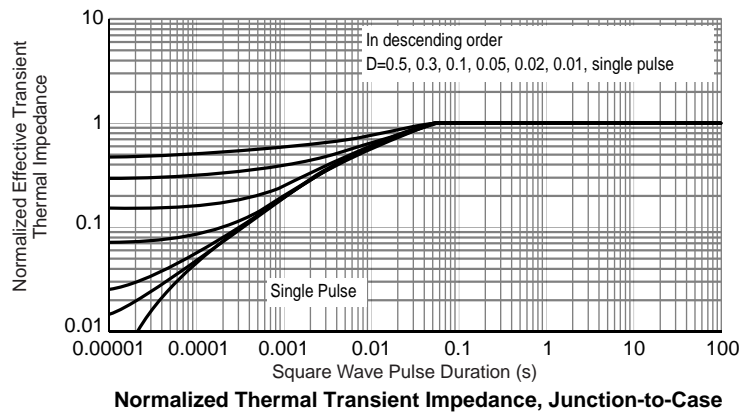
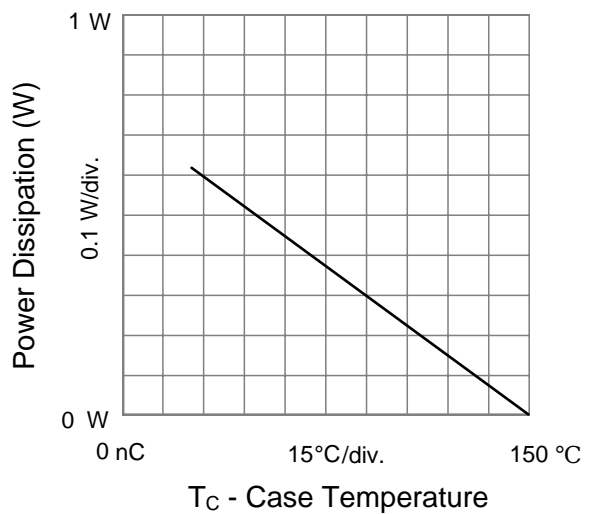
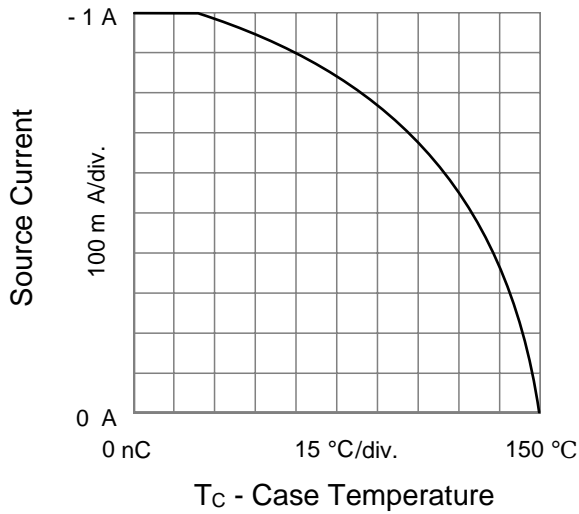
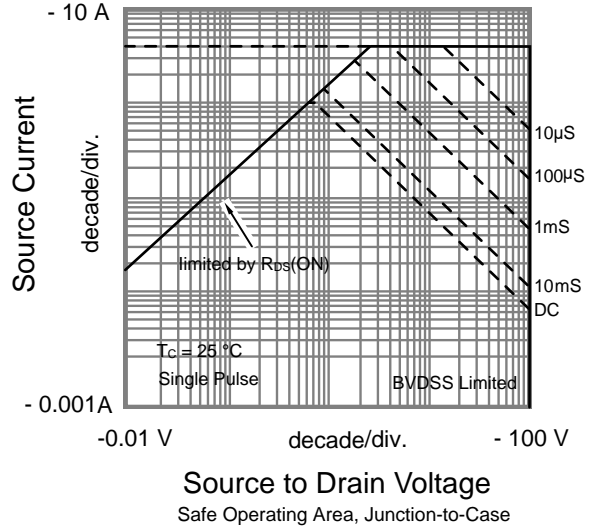
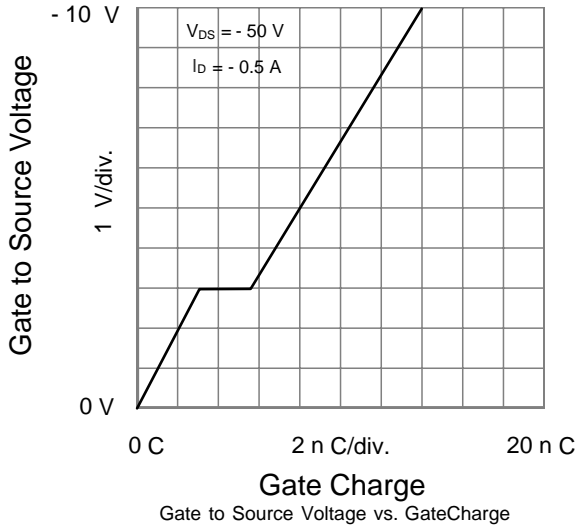


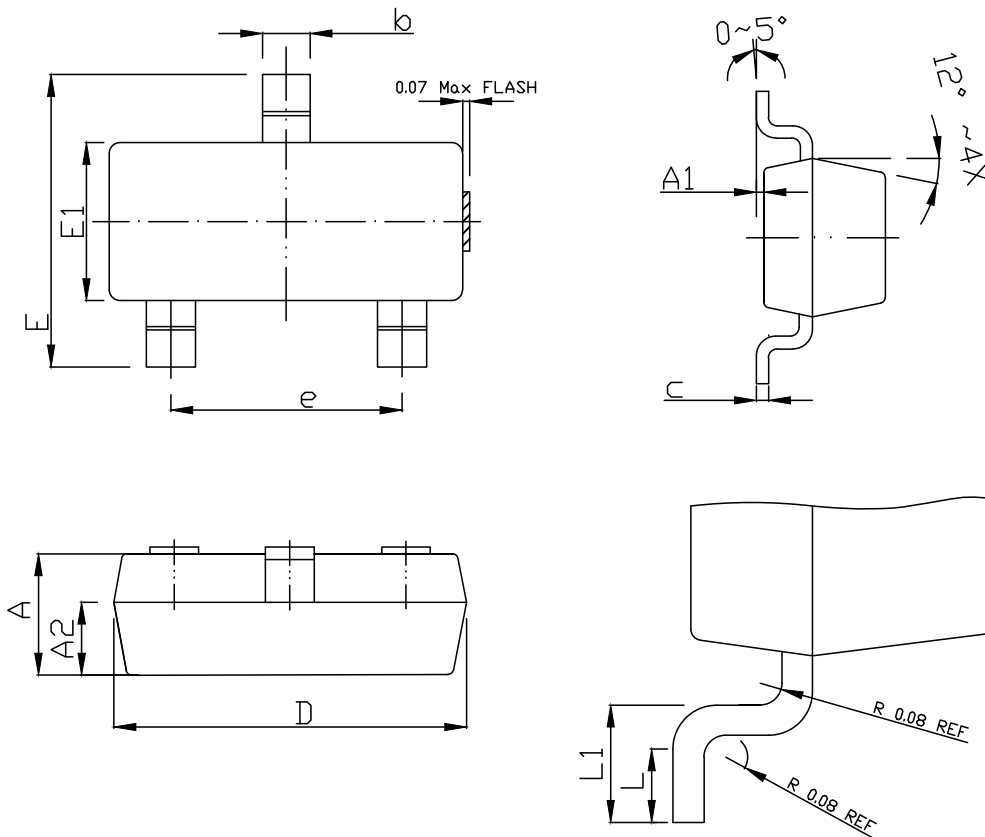
Source to Drain Voltage
Body Diode Forward Characteristics



Drain to Source Voltage
Capacitances

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)





COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.80	1.00	1.30
A1	0.00	0.05	0.15
b	0.25	0.40	0.55
c	0.11 BSC		
D	2.60	2.90	3.20
E	2.10	2.40	2.70
E1	1.10	1.30	1.48
e	1.90 BSC		
L	0.17	-	-
L1	0.28	0.40	0.53
A2	0.60 REF		

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