Dual N-Channel 20 V (D-S) MOSFET

PRODUCT SUMMARY

BV_{DSS}	20V
$R_{DSON(MAX.)}$	0.020Ω
I_D	8A

FEATURES

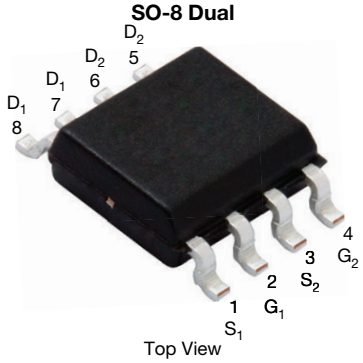
- TrenchFET® Power MOSFET
- 100 % UIS Tested
- 100 % R_g Tested

Pb-free
RoHS COMPLIANT
HALOGEN FREE

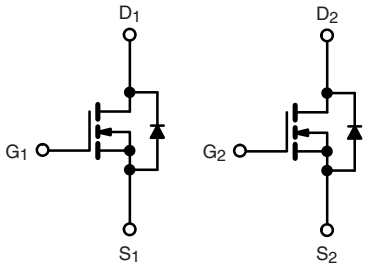
APPLICATIONS

- Set Top Box
- Low Current DC/DC

SO-8 Dual



Top View



N-Channel MOSFET N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25 °C, unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current@10V	T_A = 25 °C	I_D	8	A
	T_A = 100 °C		5.7	
Pulsed Drain Current		I_{DM}	28	A
Total Power Dissipation	T_A = 25 °C	P_D	1.9	W
Operating Junction and Storage Temperature Range		T_J , T_{STG}	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	LIMIT.	Unit
Thermal resistance, junction-to-ambient	$R_{\theta}JA$	80	°C / W

Electrical Characteristics T_J = 25°C, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V , I_D = 250 μA	20	-	-	V
Gate-body Leakage current	I_{GSS}	V_{DS} = 0 V , V_{GS} = ± 12 V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20 V , V_{GS} = 0 V , T_J = 25 °C	-	-	1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250 μA	0.4		1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5 V , I_D = 5 A	-	0.014	0.020	Ω
		V_{GS} = 2.5 V , I_D = 4.7 A	-	0.021	0.030	
		V_{GS} = 1.8 V , I_D = 4.3 A	-	0.032	0.045	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10 V , V_{GS} = 0 V , f = 1 MHz	-	702	-	pF
Output Capacitance	C_{oss}		-	122	-	
Reverse Transfer Capacitance	C_{rss}		-	107	-	
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 10 V , V_{GS} = 4.5 V , I_D = 5 A	-	10.7	-	nC
Gate-Source Charge	Q_{gs}		-	2.2	-	
Gate-Drain Charge	Q_{gd}		-	2.7	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10 V , I_D ≅ 5 A , V_{GEN} = 10 V , R_G = 3 Ω	-	12	-	nS
Rise Time	t_r		-	22	-	
Turn-Off Delay Time	$t_{d(off)}$		-	34	-	
Fall Time	t_f		-	12	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S = 4 A , V_{GS} = 0 V	-	-	1.2	V
Continuous Source-Dranin Diode Current	I_S	T_J = 25 °C	-	-	8	A

Notes：

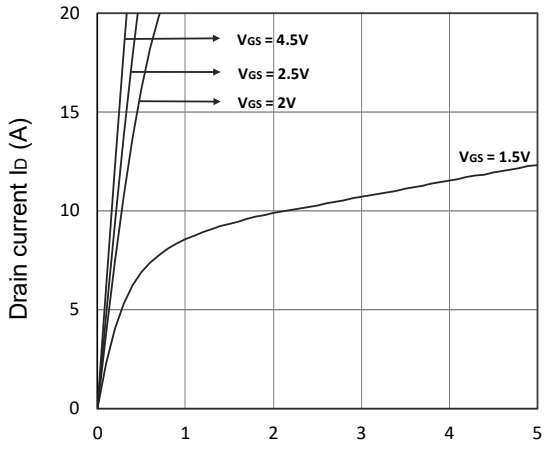
a. Repetitive rating, pulse width limited by junction temperature$T_{J(MAX)}$=150°C.

b. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper,The value in any given application depends on the user's specific board design.

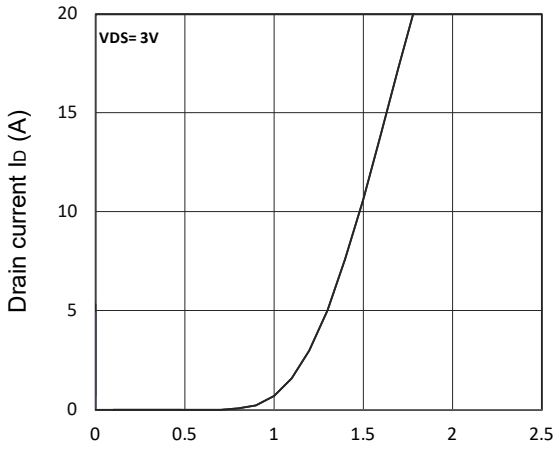
c. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

d. This value is guaranteed by design hence it is not included in the production test

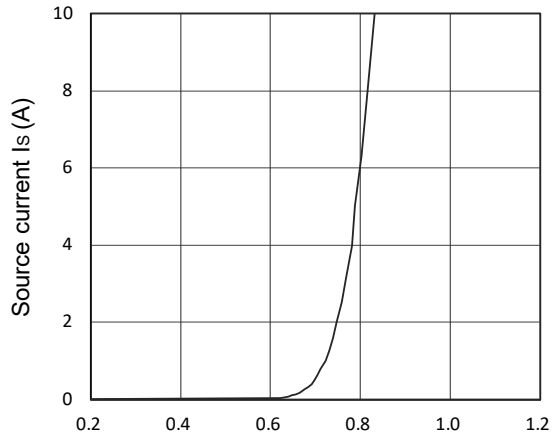
Test circuit and Waveform



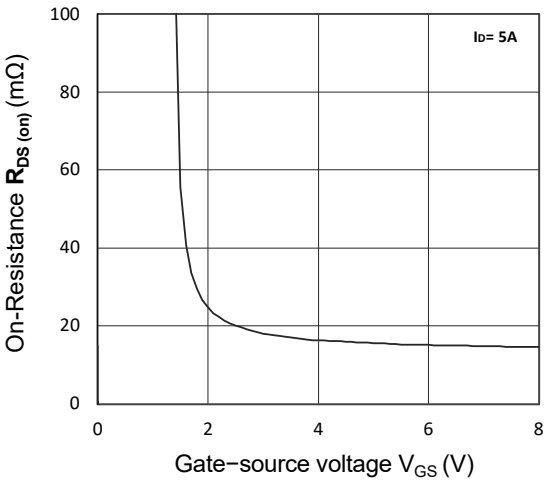
Output Characteristics



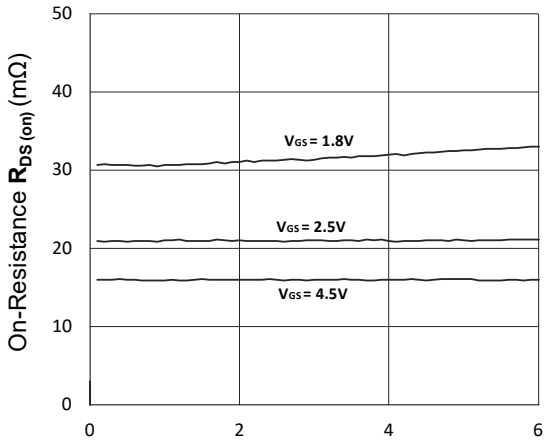
Transfer Characteristics



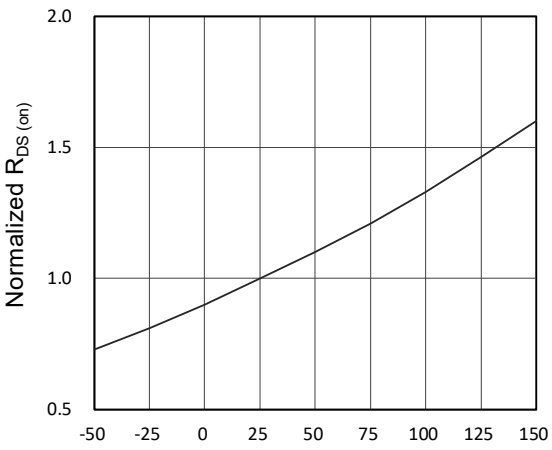
Forward Characteristics of Reverse



$R_{DS(ON)}$ vs. V_{GS}

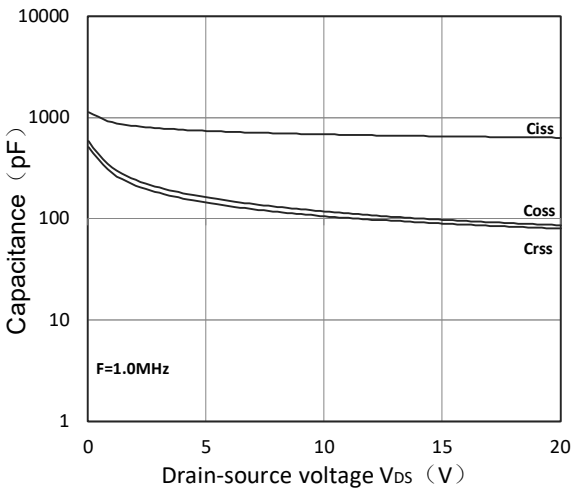


$R_{DS(ON)}$ vs. I_D

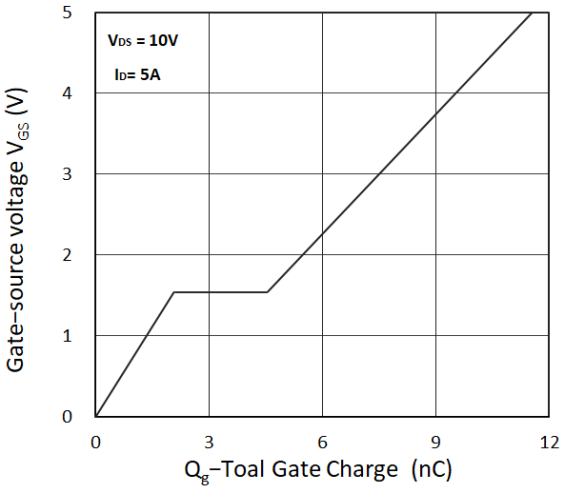


Normalized $R_{DS(on)}$ vs. Temperature

Test circuit and Waveform

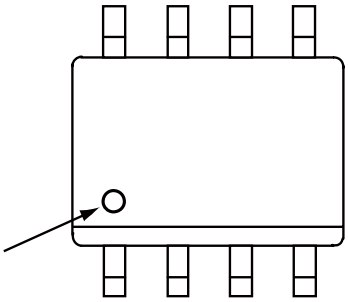


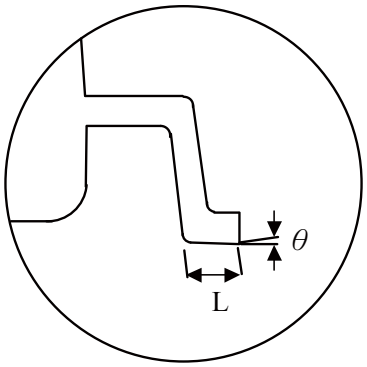
Capacitance Characteristics



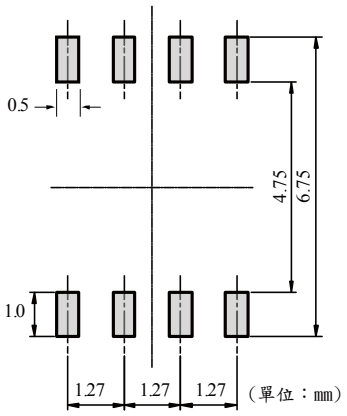
Gate Charge Characteristics

SO-8 _ PACKGE OUTLIN

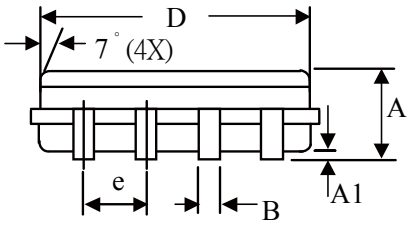


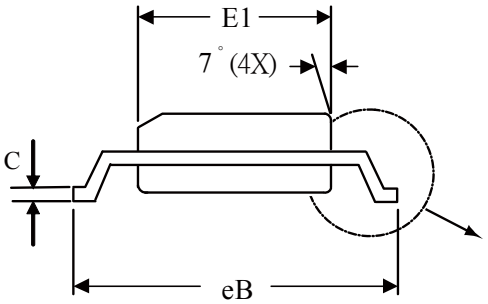


Detail "A"



Land Pattern Recommendation





SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
B	0.31	0.51	0.012	0.020
C	0.17	0.25	0.007	0.010
D	4.69	5.00	0.185	0.197
E1	3.70	4.06	0.146	0.160
eB	5.80	6.20	0.228	0.244
e	1.27		0.050	
L	0.40	0.95	0.016	0.037
θ	0°	8°	0°	8°