

N-Channel 100 V (D-S) MOSFET

PRODUCT SUMMARY

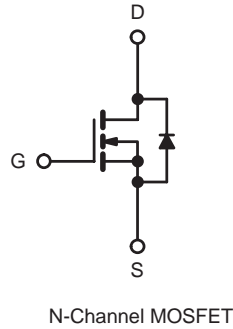
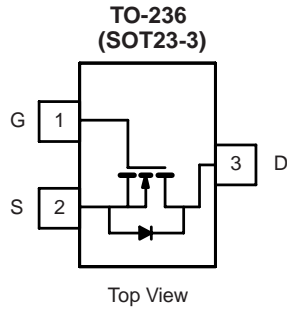
BV _{DSS}	100V
R _{DSON(MAX)}	0.130Ω
I _D	5A

FEATURES

- 100 % R_g Tested
- 100 % UIS Tested
- Material categorization:

APPLICATIONS

- DC/DC Converters
- Load Switch
- LED Backlighting in LCD TVs



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	± 20	V
Continuous Drain Current@10V	I _D	T _A = 25 °C	5
		T _A = 70 °C	2.2
Pulsed Drain Current	I _{DM}	11	A
Total Power Dissipation	P _D	1	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	TYP.	MAX.	Unit
Thermal resistance, junction-to-ambient	R _{θJA}	-	125	°C/W
Thermal resistance, junction-to-case	R _{θJC}	-	80	

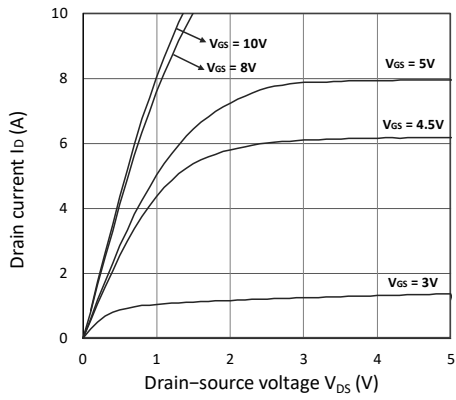
Electrical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	100	-	-	V
Gate-body Leakage current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$T_J = 25^\circ\text{C}$ $V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$	-	-	± 1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.0		3.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 3\text{ A}$	-	0.100	0.130	Ω
		$V_{GS} = 4.5\text{ V}, I_D = 2\text{ A}$	-	0.136	0.177	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 50\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	-	198	-	μF
Output Capacitance	C_{oss}		-	26.1	-	
Reverse Transfer Capacitance	C_{rss}		-	21.6	-	
Switching Characteristics						
Total Gate Charge	Q_g	$V_{GS} = 10\text{ V}, V_{DS} = 50\text{ V}, I_D = 3\text{ A}$	-	4.5	-	nC
Gate-Source Charge	Q_{gs}		-	3.7	-	
Gate-Drain Charge	Q_{gd}		-	3.1	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 50\text{ V}, I_D = 3\text{ A}, V_{GEN} = 10\text{ V},$ $R_G = 2\ \Omega$	-	14.9	-	nS
Rise Time	t_r		-	3.7	-	
Turn-Off Delay Time	$t_{d(off)}$		-	21.1	-	
Fall Time	t_f		-	2.9	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$I_S = 3\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.3	V
Continuous Source Current	I_S		-	-	5	A
Continuous Source Current	I_{SM}		-	-	12	
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ\text{C}, I_F = 1.3\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$	-	32.3	-	ns
Reverse Recovery Charge	Q_{rr}		-	39.6	-	nC

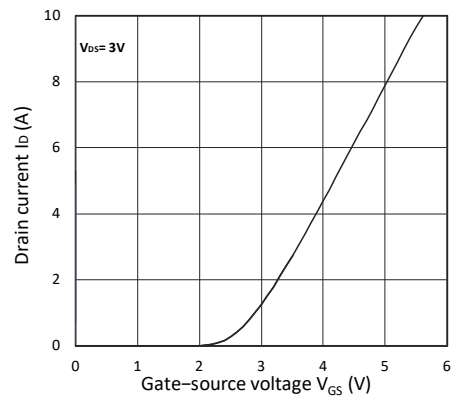
Notes:

- Repetitive Rating: Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.
- Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production.
- $V_{DD} = 50\text{ V}, R_G = 50\ \Omega, L = 0.3\text{ mH}$, starting $T_J = 25^\circ\text{C}$

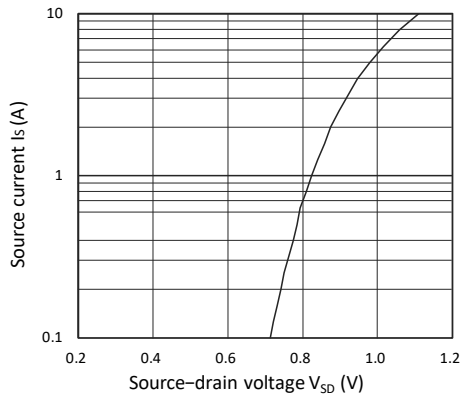
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



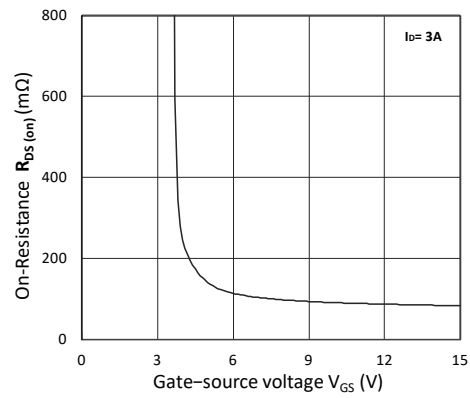
Output Characteristics



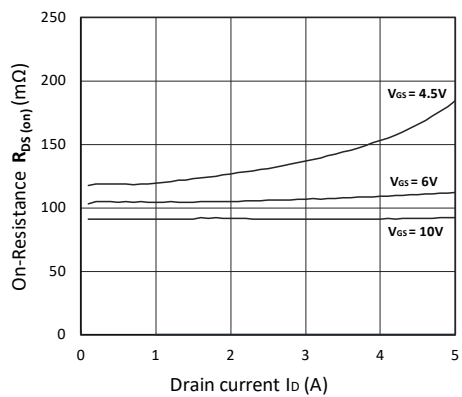
Transfer Characteristics



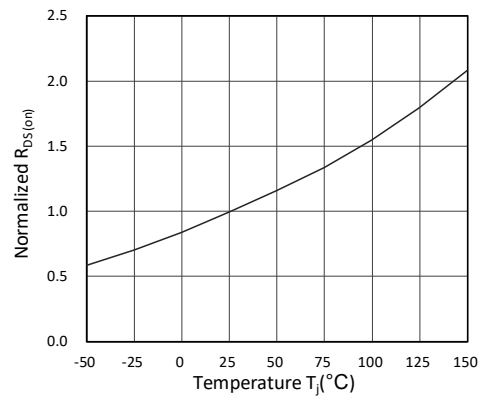
Forward Characteristics of Reverse



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

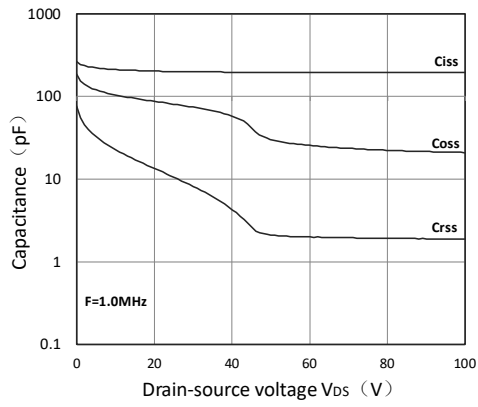


$R_{DS(ON)}$ vs. I_D

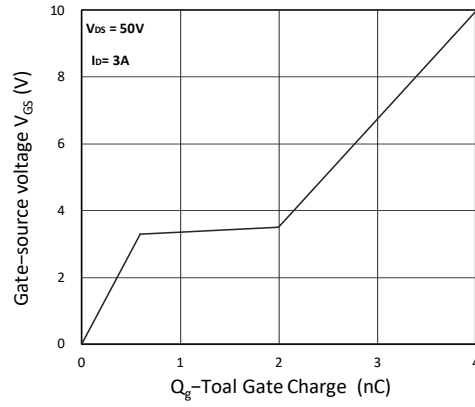


Normalized $R_{DS(on)}$ vs. Temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

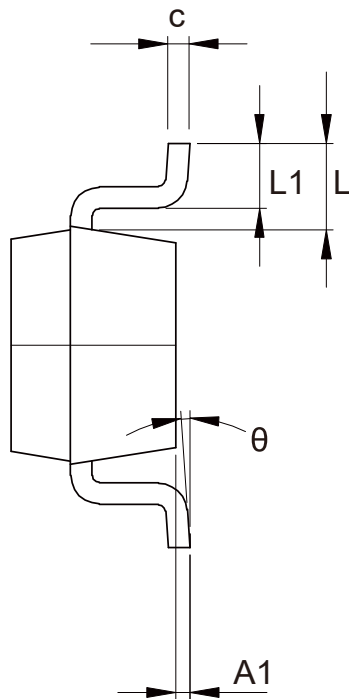
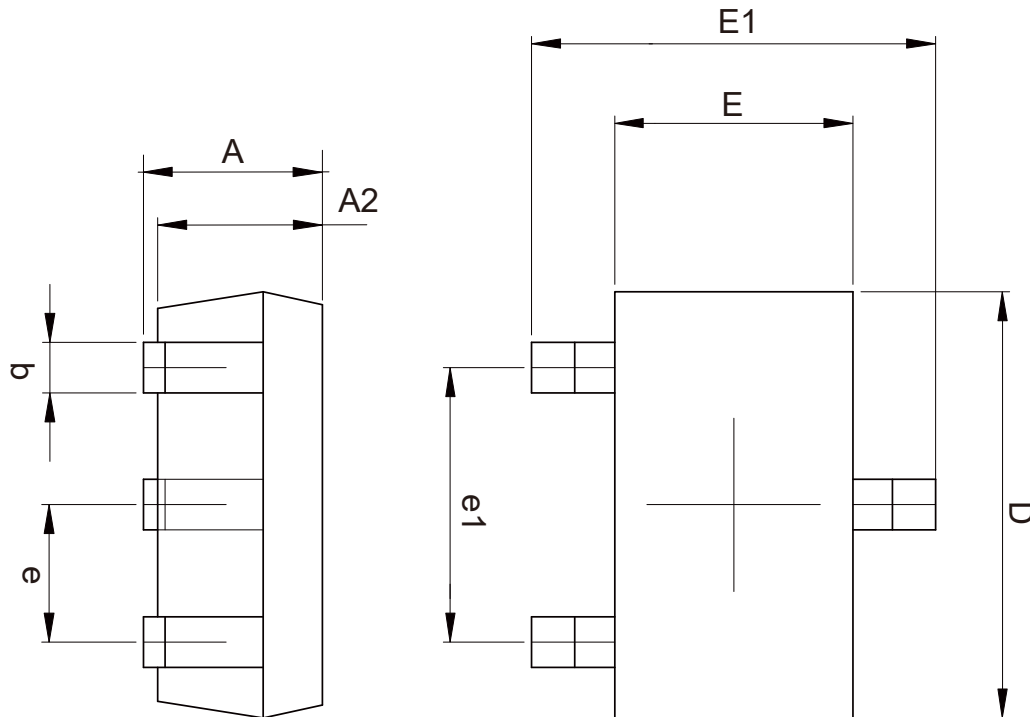


Capacitance Characteristics



Gate Charge Characteristics

SOT23-3L_PACKGE OUYTLIN



COMMON DIMENSIONS			
CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	1.050	---	1.300
A1	0.000	---	0.200
A2	1.050	---	1.200
b	0.300	0.400	0.500
c	0.100	---	0.200
D	2.820	2.900	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.6REf		
L1	0.300	0.450	0.600
theta	0°	--	8°

Unit:mm