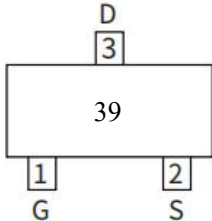
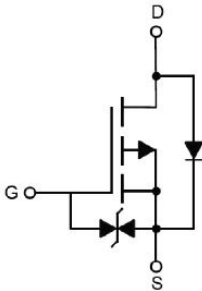


Features ➤ Green Device Available ➤ Super Low Gate Charge ➤ Excellent Cdv/dt effect decline ➤ Advanced high cell density Trench technology ➤ ESD Rating:2000V HBM	Bvdss	Rdson	ID
	-20V	520mΩ	-0.66A
	Application ➤ Battery protection ➤ Load Switch ➤ Uninterruptible power supply		

RoHS

Package
 Marking and pin assignment  SOT523-3L top view  Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
39	3139	SOT523-3L	3000

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹	I_D	-0.66	A
Pulsed Drain Current ($t_p=10\mu\text{s}$) ²	I_{DM}	-1.2	A
Total Power Dissipation ¹	P_D	150	mW
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10S)	T_L	260	$^{\circ}\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-ambient ¹	$R_{\theta JA}$	--	833	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	--	--	$^{\circ}\text{C}/\text{W}$



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	S	D	
HL3139	SOT523-3L	1	2	3	Tape Reel

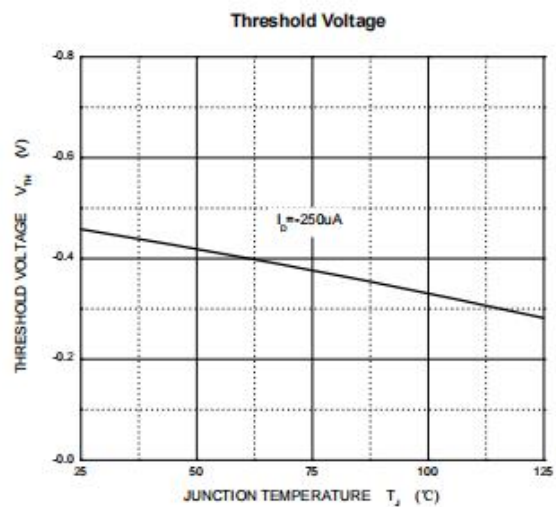
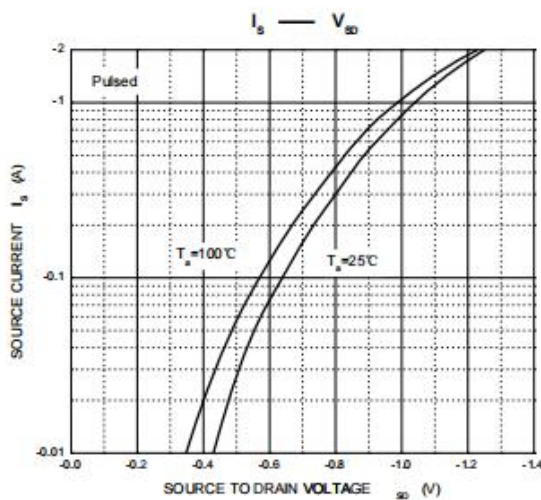
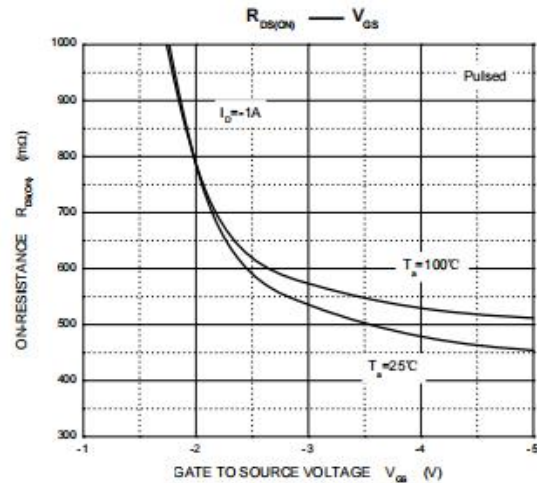
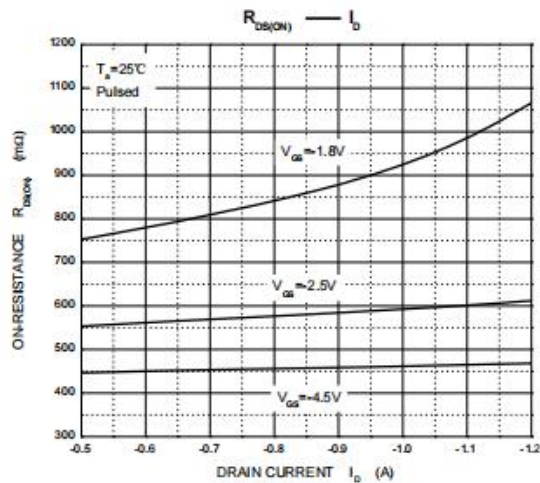
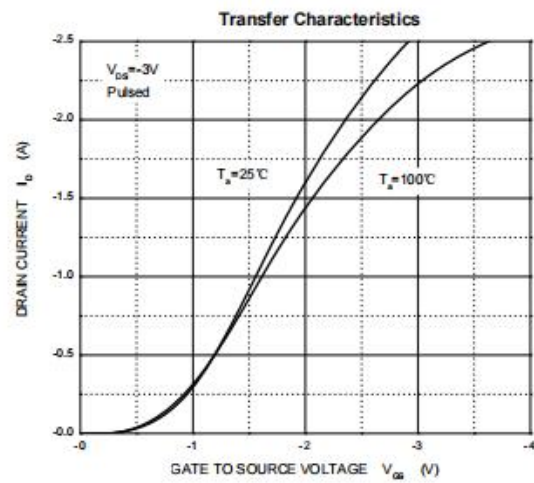
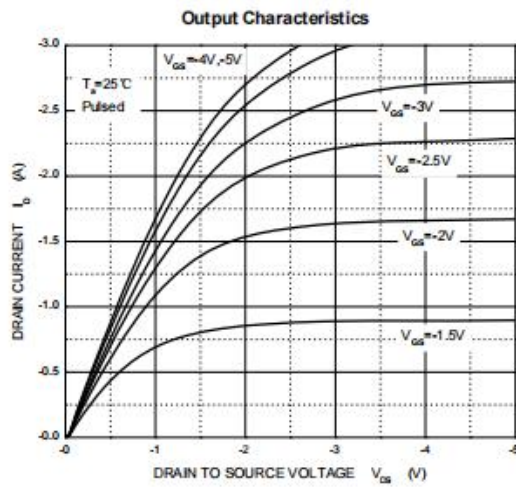
Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =-250μA	-20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±20	nA
Gate Threshold Voltage ²	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-	-1.1	V
Drain-Source On-State Resistance ²	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1A	-	-	520	mΩ
		V _{GS} =-2.5V, I _D =-0.8A	-	-	700	
		V _{GS} =-1.8V, I _D =-0.5A	-	950	-	
Input Capacitance	C _{iss}	V _{DS} =-16V, V _{GS} =0V, f=1.0MHz	-	113	170	pF
Output Capacitance	C _{oss}		-	15	25	pF
Reverse Transfer Capacitance	C _{rss}		-	9	15	pF
Turn-on Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-200mA, R _{GEN} =10Ω	-	9	-	nS
Turn-on Rise Time	t _r		-	5.8	-	nS
Turn-off Delay Time	t _{d(off)}		-	32.7	-	nS
Turn-off Fall Time	t _f		-	20.3	-	nS

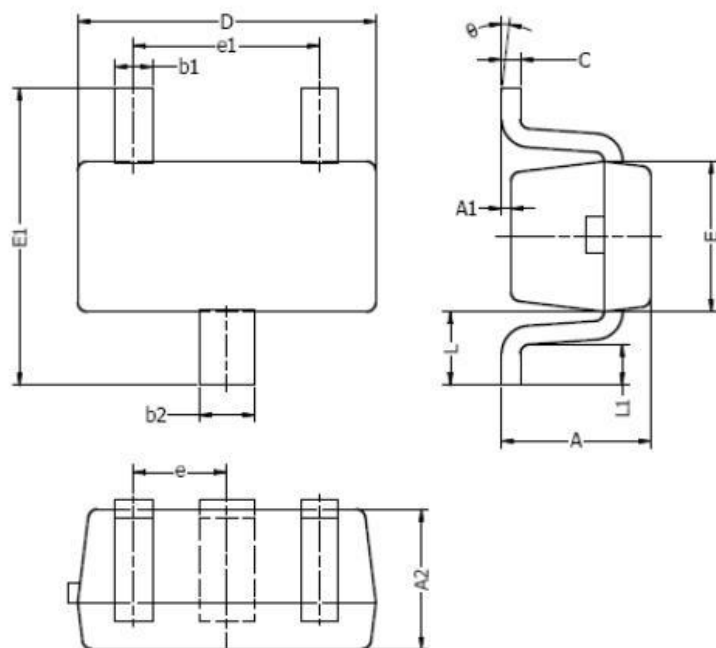
Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

Typical Characteristics



Package Dimensions SOT523-3L



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

NOTES:

1. Above package outline conforms to JEITA EAIJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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