

Power MOSFET

200 mAmps, 50 Volts

N-Channel SC-70

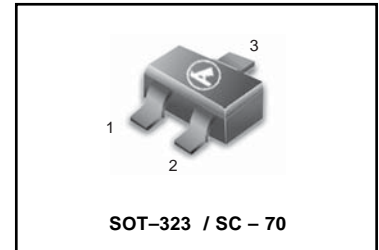
Typical applications are dc-dc converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low Threshold Voltage ($V_{GS(th)}$: 0.5V...1.5V) makes it ideal for low voltage applications
- Miniature SC-70 Surface Mount Package saves board space
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish
- ESD Protected: 1500V

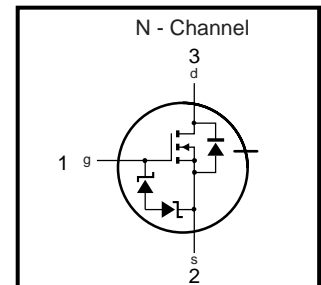
MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	50	Vdc
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	Vdc
Drain Current			mA
– Continuous @ $T_A = 25^\circ\text{C}$	I_D	200	
– Pulsed Drain Current ($t_p \leq 10 \mu\text{s}$)	I_{DM}	800	
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	150	mW
Operating and Storage Temperature Range	T_J, T_{stg}	- 55 to 150	$^\circ\text{C}$
Thermal Resistance – Junction-to-Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

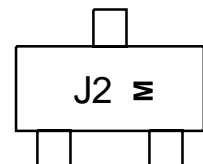
LBSS139WT1G



200 mAmps
50 Volts
 $R_{DS(on)} = 3.5 \Omega$



MARKING DIAGRAM & PIN ASSIGNMENT



J2 = Device Code
M = Month Code

ORDERING INFORMATION

Device	Package	Shipping
LBSS139WT1G	SC-70	3000 Tape & Reel
LBSS139WT3G	SC-70	10000 Tape & Reel

LBSS139WT1G

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ($V_{GS} = 0 \text{ Vdc}$, $I_D = 250 \mu\text{Adc}$)	$V_{(BR)DSS}$	50	–	–	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$) ($V_{DS} = 50 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$)	I_{DSS}	– –	– –	0.1 0.5	μAdc
Gate-Source Leakage Current ($V_{GS} = \pm 20 \text{ Vdc}$, $V_{DS} = 0 \text{ Vdc}$)	I_{GSS}	–	–	± 10	μAdc

ON CHARACTERISTICS (Note 1.)

Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = 1.0 \text{ mAdc}$)	$V_{GS(th)}$	0.5	–	1.5	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = 2.75 \text{ Vdc}$, $I_D < 200 \text{ mAdc}$, $T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$) ($V_{GS} = 5.0 \text{ Vdc}$, $I_D = 200 \text{ mAdc}$)	$r_{DS(on)}$	– –	5.6 –	10 3.5	Ohms
Forward Transconductance ($V_{DS} = 25 \text{ Vdc}$, $I_D = 200 \text{ mAdc}$, $f = 1.0 \text{ kHz}$)	g_{fs}	100	–	–	mmhos

DYNAMIC CHARACTERISTICS

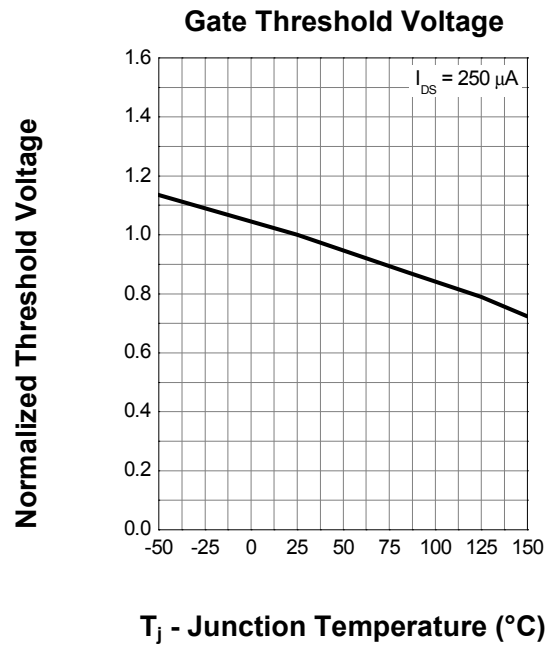
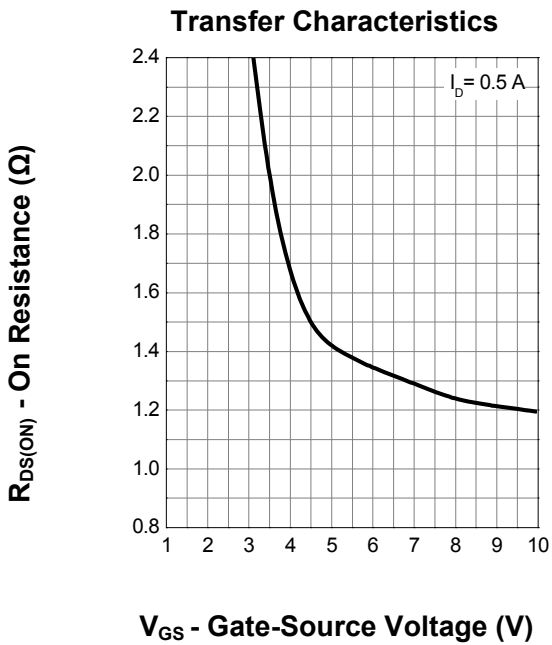
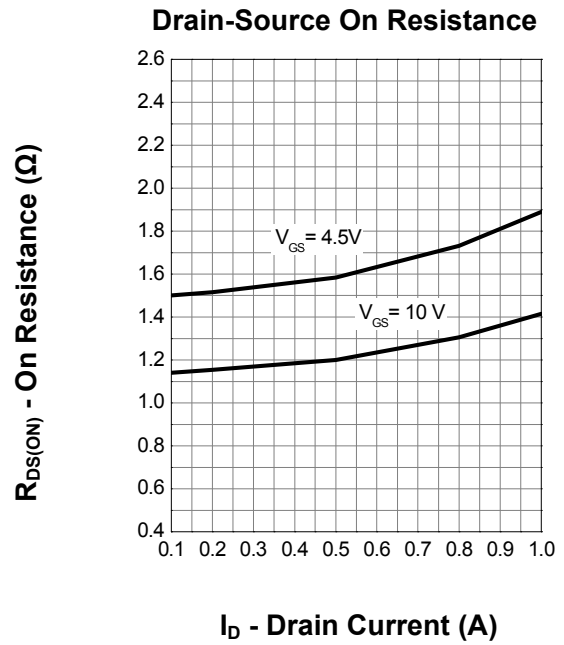
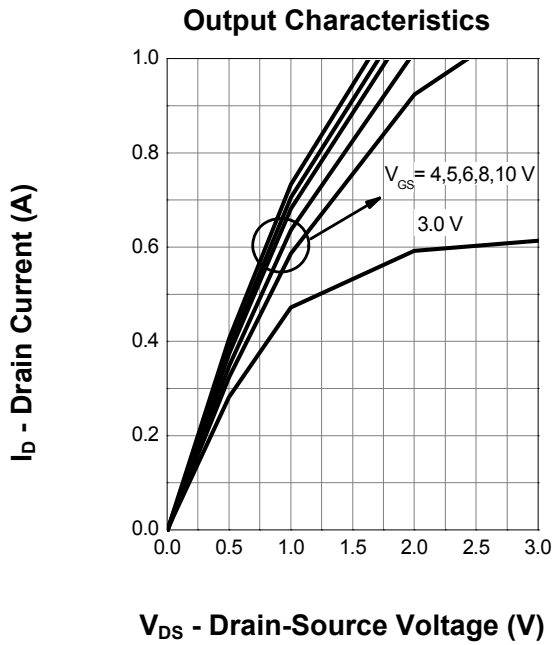
Input Capacitance	($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{iss}	–	22.8	–	pF
Output Capacitance	($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{oss}	–	3.5	–	
Transfer Capacitance	($V_{DG} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{rss}	–	2.9	–	

SWITCHING CHARACTERISTICS (Note 2.)

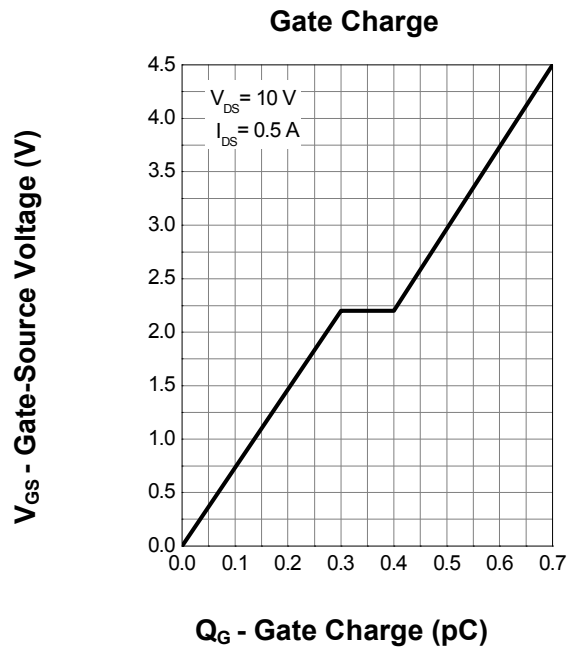
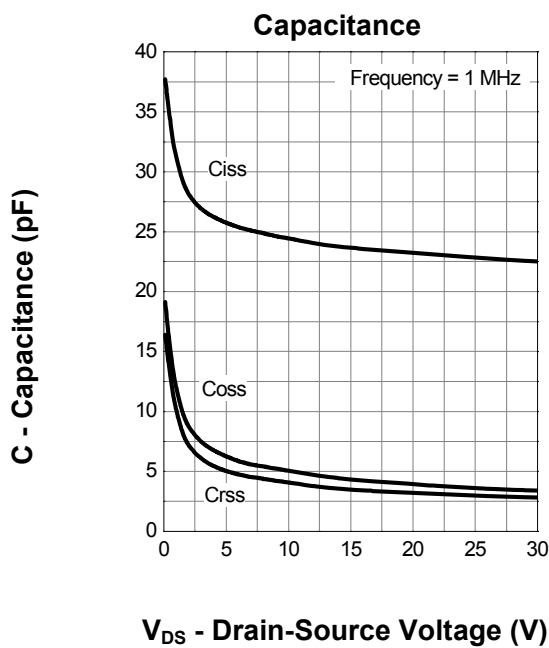
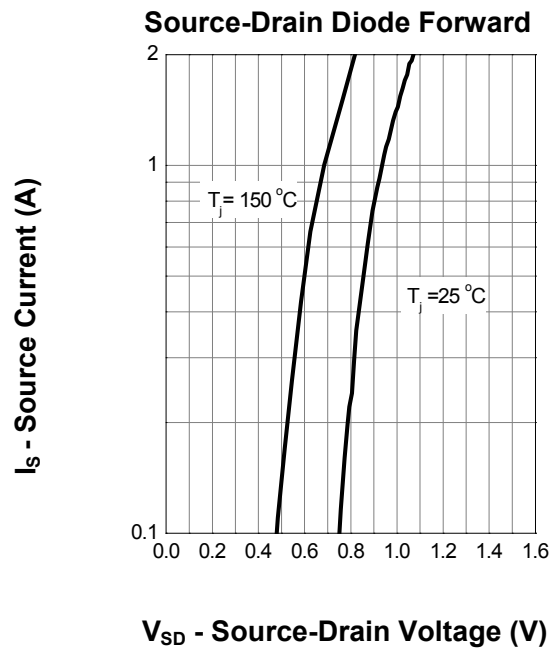
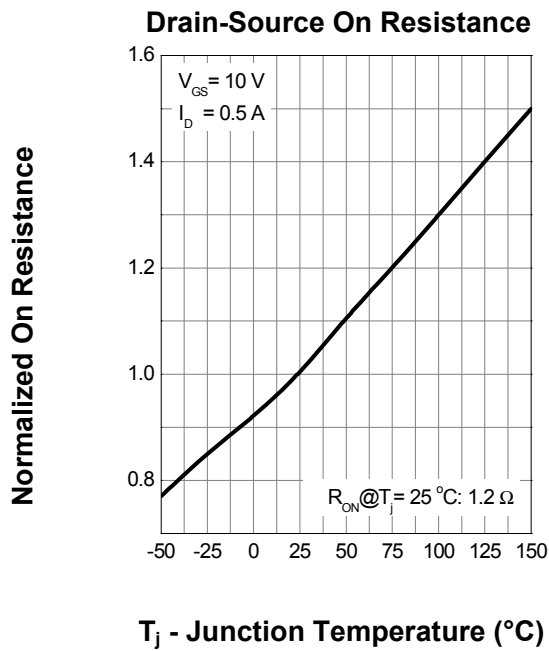
Turn-On Delay Time	($V_{DS} = 30 \text{ Vdc}$, $I_{DS} = 0.5 \text{ Adc}$,)	$t_{d(on)}$	–	3.8	–	ns
Turn-Off Delay Time		$t_{d(off)}$	–	19	–	

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

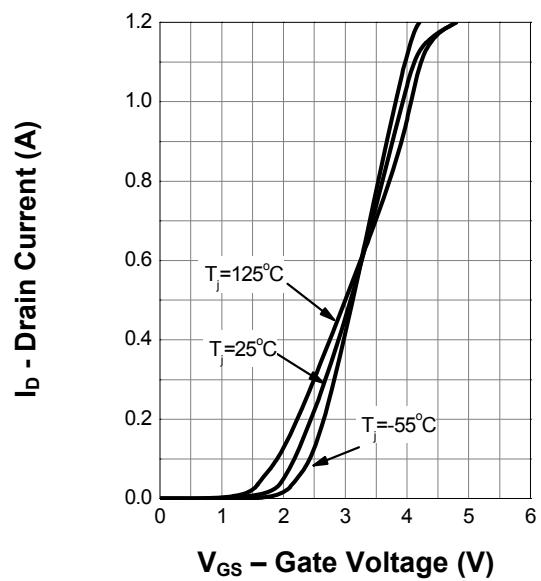
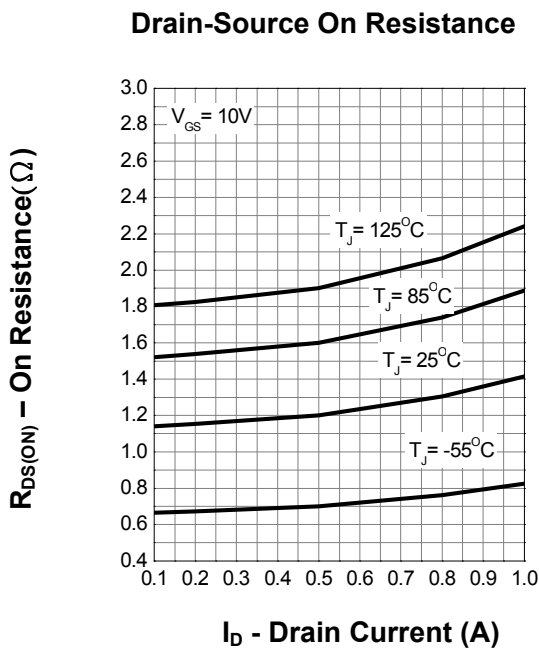
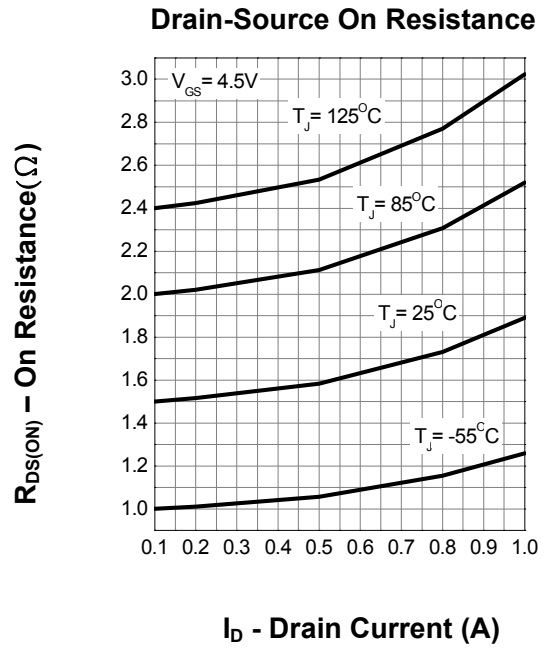
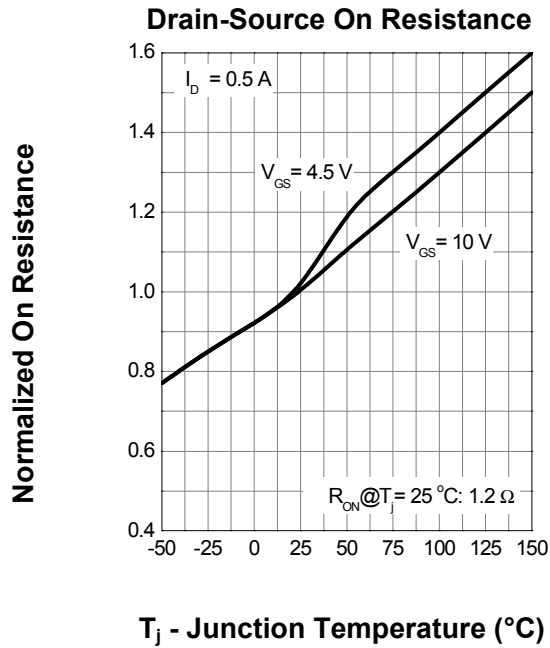
TYPICAL ELECTRICAL CHARACTERISTICS



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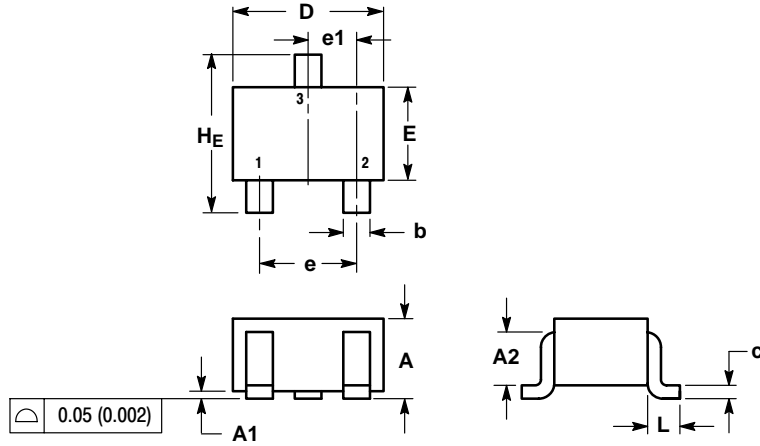


TYPICAL ELECTRICAL CHARACTERISTICS



LBSS139WT1G

SC-70

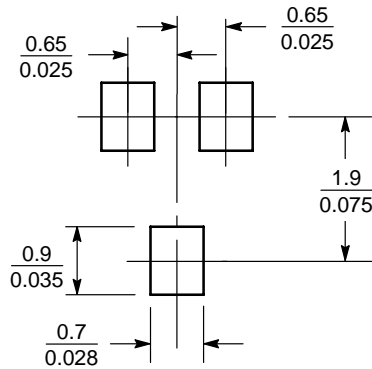


NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
HE	2.00	2.10	2.40	0.079	0.083	0.095

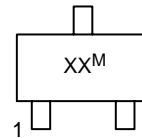
0.05 (0.002)

SOLDERING FOOTPRINT*



SCALE 10:1 (mm/inches)

GENERIC MARKING DIAGRAM



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.