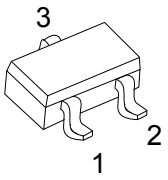
BSS139Z

Power MOSFET

0.2A, 50V N-CHANNEL POWER MOSFET



SOT-23-3
(JEDEC TO-236)

■ DESCRIPTION

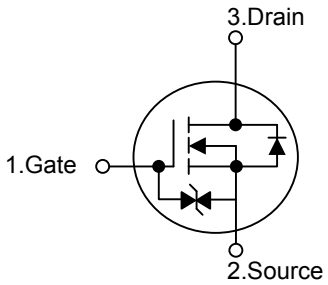
The UTC **BSS139Z** is an N-Channel power MOSFET, it uses UTC's advanced technology to provide customers with high switching speed and low threshold voltage.

The UTC **BSS139Z** is suitable for battery-powered products, power management in portable and DC to DC converters, etc.

■ FEATURES

* $R_{DS(ON)} \leq 5.6\Omega$ @ V_{GS}=5V, I_D=200mA
* High switching speed
* Low threshold voltage (Min.=0.5V, Max.=1.5V)

■ SYMBOL



■ ORDERING INFORMATION

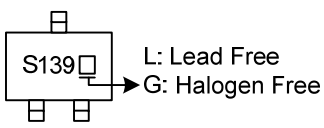
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BSS139ZL-AE2-R	BSS139ZG-AE2-R	SOT-23-3	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

BSS139ZG-AE2-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) AE2: SOT-23-3
(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise noted)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	50	V
Gate-Source Voltage			V_{GSS}	±20	V
Drain Current	Continuous		I_D	200	mA
	Pulsed	t_p≤10μs	I_{DM}	800	mA
Power Dissipation			P_D	225	mW
Junction Temperature			T_J	-55 ~ +150	°C
Storage Temperature Range			T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	556	°C/W

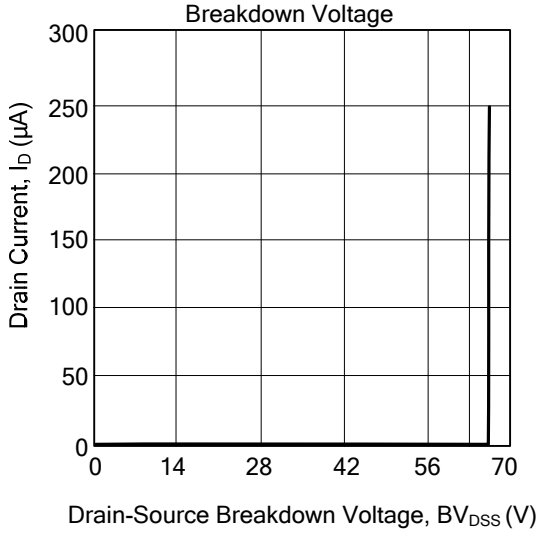
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	50			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=25V, V_{GS}=0V			0.1	μA
			V_{DS}=50V, V_{GS}=0V			0.5	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+10	μA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-10	μA
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=1.0mA	0.5		1.5	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=2.75V, I_D=200mA		5.6	10	Ω
			V_{GS}=5.0V, I_D=200mA			3.5	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		40	50	pF
Output Capacitance		C_{OSS}			12	25	pF
Reverse Transfer Capacitance		C_{RSS}			3.5	5.0	pF
SWITCHING PARAMETERS (Note 2)							
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=30V, I_D=0.2A			20	ns
Turn-OFF Delay Time		$t_{D(OFF)}$				20	ns

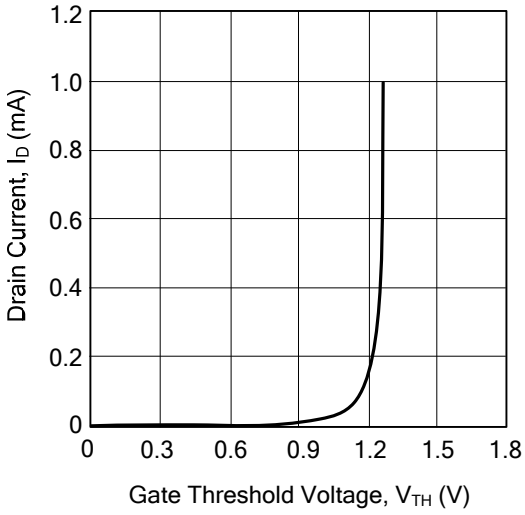
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperature.

■ TYPICAL CHARACTERISTICS

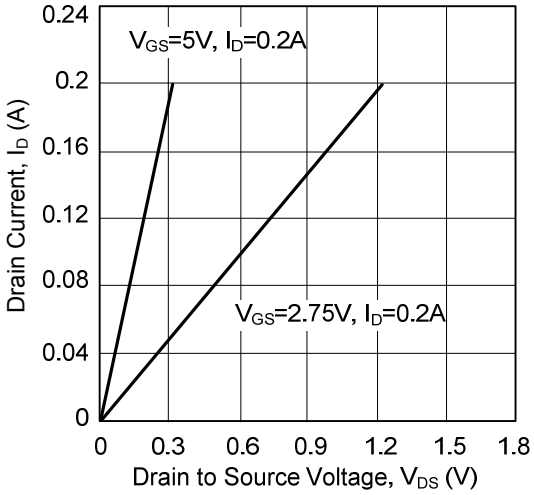
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage