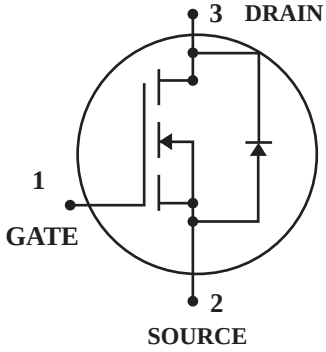
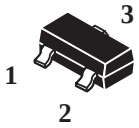
WEITRON

BSS138

Small Signal MOSFET
N-Channel



SOT-23



Features:

*Low On-Resistance : 3.5Ω
*Low Input Capacitance: 40PF
*Low Out put Capacitance : 12PF
*Low Threshole :1 .5V
*Fast Switching Speed : 20ns

Application:

* DC to DC Converter
* Cellular & PCMCIA Card
* Cordless Telephone
* Power Management in Portable and Battery etc.

Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (TA=25°C)	I_D	200	mA
Pulsed Drain Current(tp≦10us)	I_{DM}	800	mA
Power Dissipation (TA=25°C)	P_D	225	mW
Maximax Junction-to-Ambient	$R_{\theta JA}$	556	°C/W
Operating Junction and Storage Temperature Range	T_J, Tstg	-55 to 150	°C

Device Marking

BSS138=J1

Electrical Characteristics (T_A=25°C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Static(1)					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=250μA	$V_{(BR)DSS}$	50	-	-	V
Gate-Source Threshold Voltage V_{DS}=V_{GS}, I_D=1.0mA	$V_{GS\ (th)}$	0.5	-	1.5	V
Gate-Source Leakage Current V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	-	-	±0.1	uA
Zero Gate Voltage Drain Current V_{DS}=25V, V_{GS}=0V V_{DS}=50V, V_{GS}=0V	I_{DSS}	-	-	0.1 0.5	μA
Drain-Source On-Resistance V_{GS}=2.75V, I_D<200mA, TA=-40°C to + 85°C V_{GS}=5.0V, I_D=200mA	$r_{DS\ (on)}$	- -	5.6 -	10 3.5	Ω
Forward Transconductance V_{DS}=25V, I_D=200mA, f=1.0KHZ	g_{fs}	100	-	-	mS
Dynamic					
Input Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{iss}	-	40	50	PF
Output Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{oss}	-	12	25	
Reverse Transfer Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{rss}	-	3.5	5.0	
Switching (2)					
Turn-On Time V_{DD}=30V, I_D=200mA	$t_{d(on)}$	-	-	20	nS
Turn-Off Time V_{DD}=30V, I_D=100mA	$t_{d(off)}$	-		20	

Note: 1. Pulse Test : PW≦300μs, Duty Cycle≦2%

2. Switching Time is Essentially Independent of Operating Temperature .

TYPICAL ELECTRICAL CHARACTERISTICS

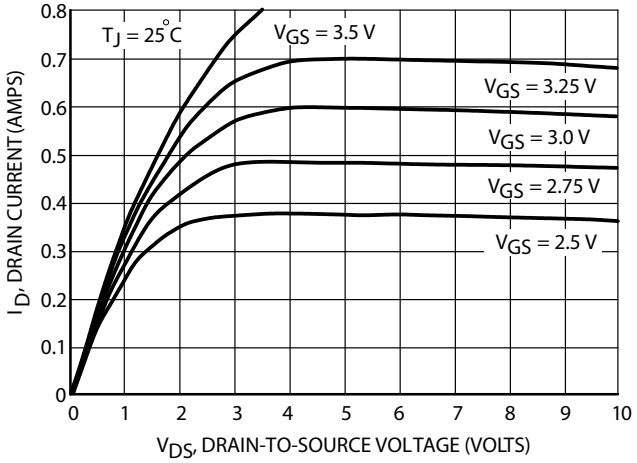


Figure 1. On-Region Characteristics

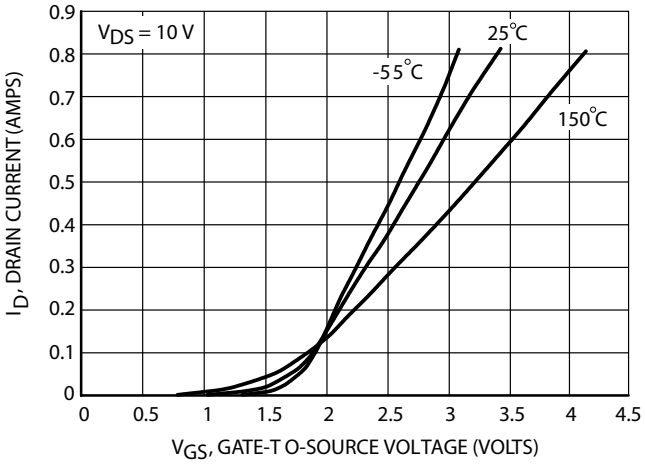


Figure 2. Transfer Characteristics

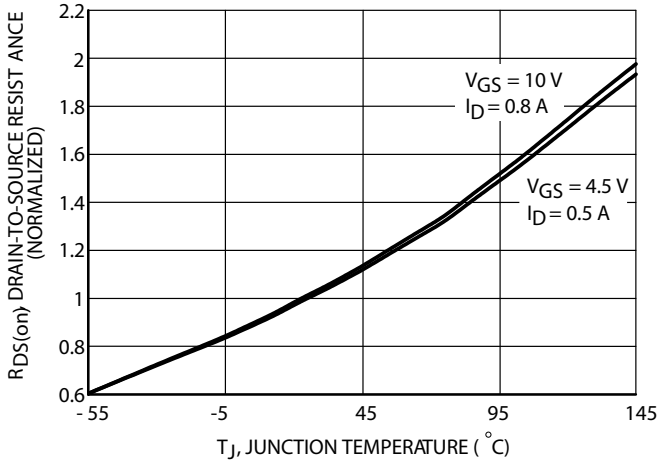


Figure 3. On-Resistance Variation with Temperature

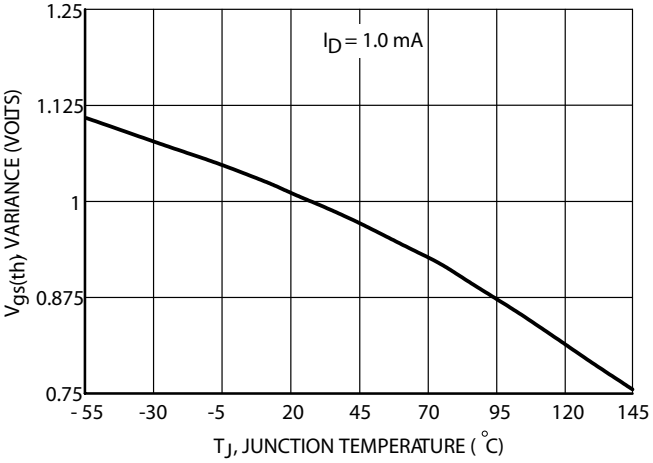


Figure 4. Threshold Voltage Variation with Temperature

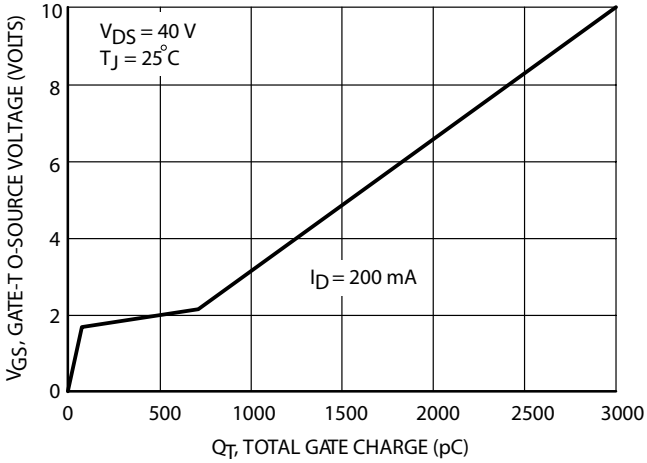


Figure 5. Gate Charge

TYPICAL ELECTRICAL CHARACTERISTICS

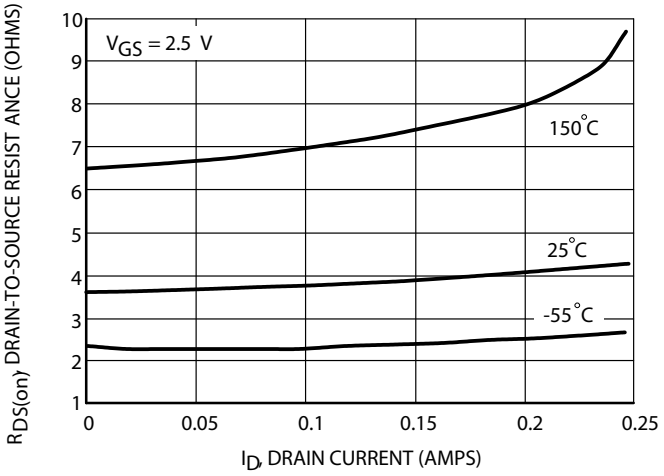


Figure 6. On-Resistance versus Drain Current

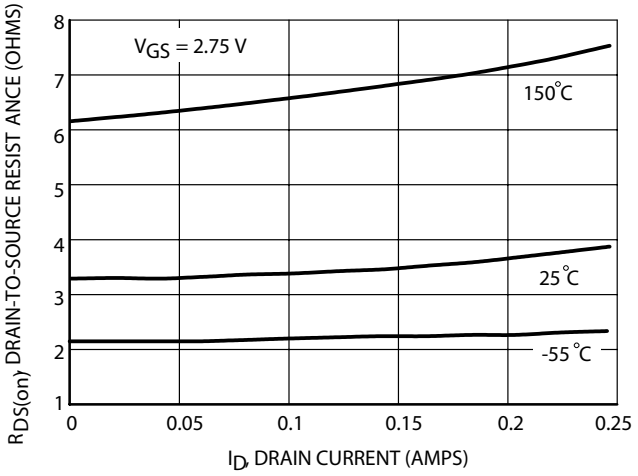


Figure 7. On-Resistance versus Drain Current

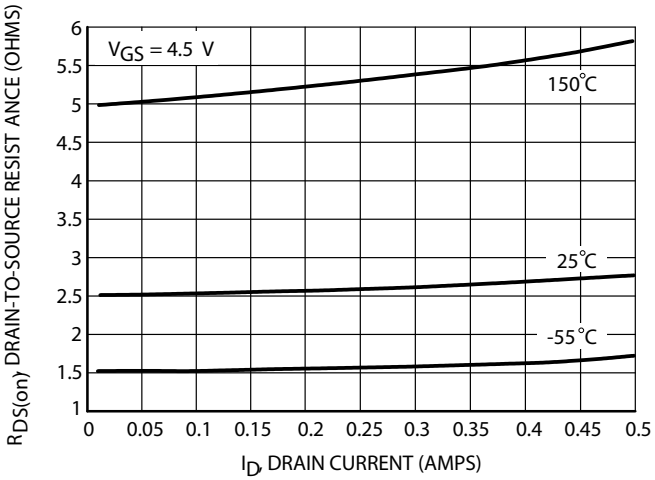


Figure 8. On-Resistance versus Drain Current

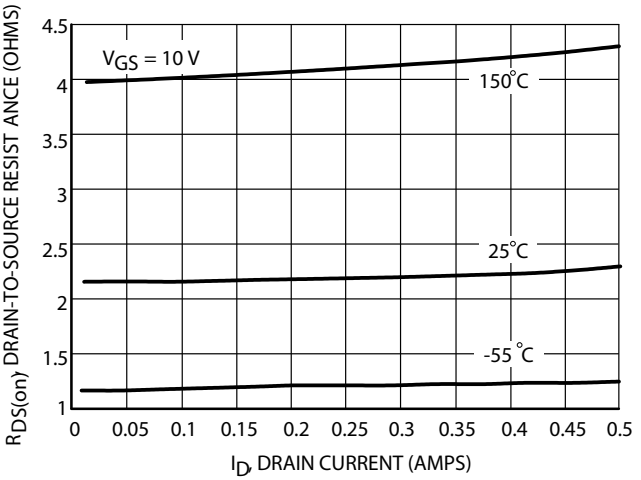


Figure 9. On-Resistance versus Drain Current

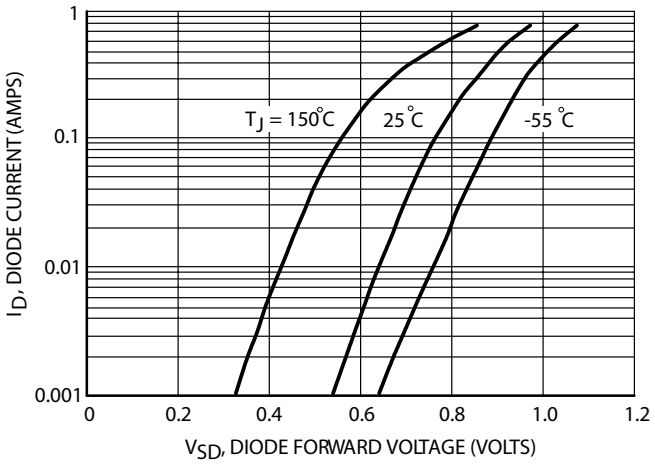


Figure 10. Body Diode Forward Voltage

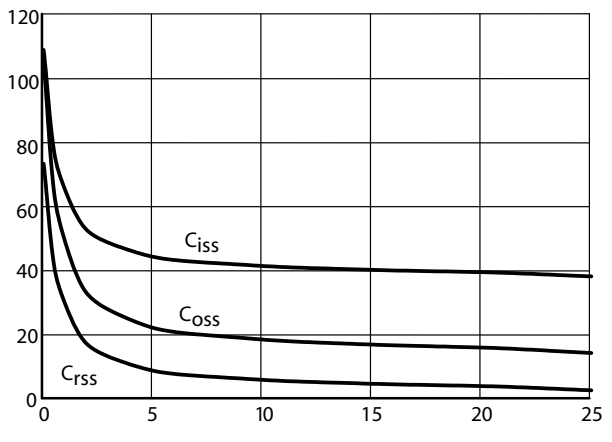


Figure 11. Capacitance