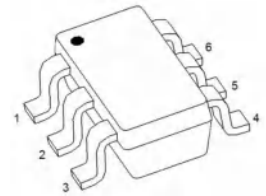
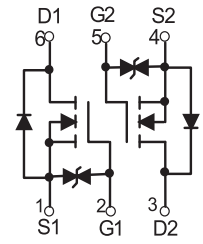




## BSS138KDW 50V Dual N-Channel MOSFET

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
50V	3.5Ω@10V	220mA
	6.0Ω@4.5V	



SOT-363

### Feature

- High density cell design for extremely low  $R_{DS(on)}$
- Rugged and Reliable

### Application

- Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

MARKING:SS

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	0.22	A
Power Dissipation	$P_D$	150	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$



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

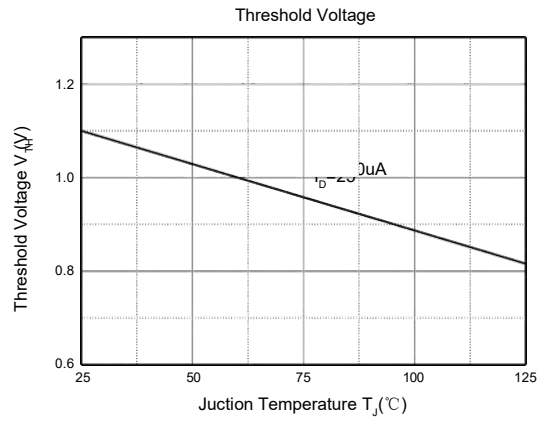
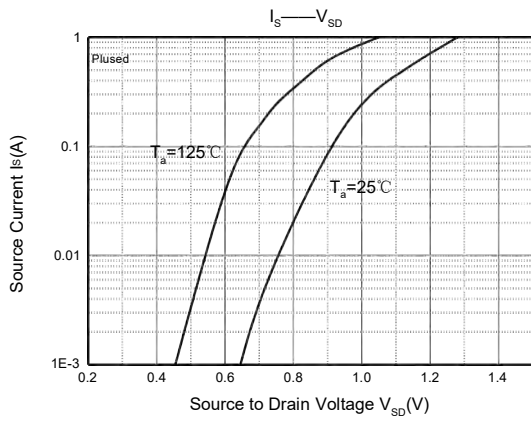
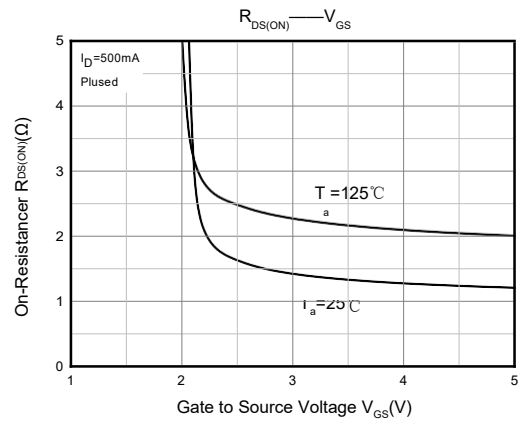
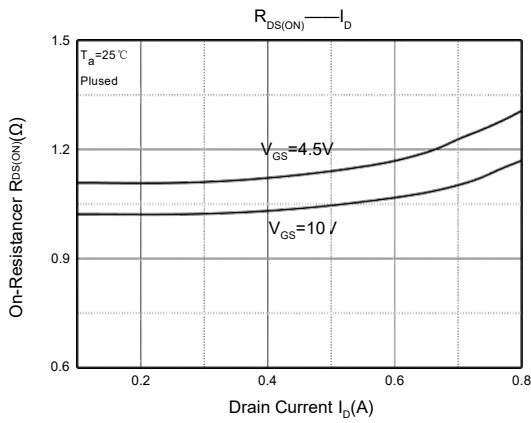
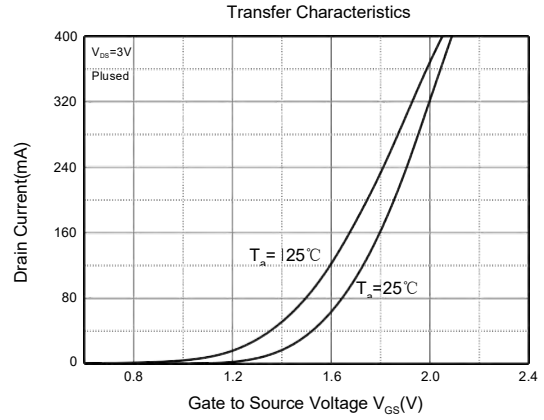
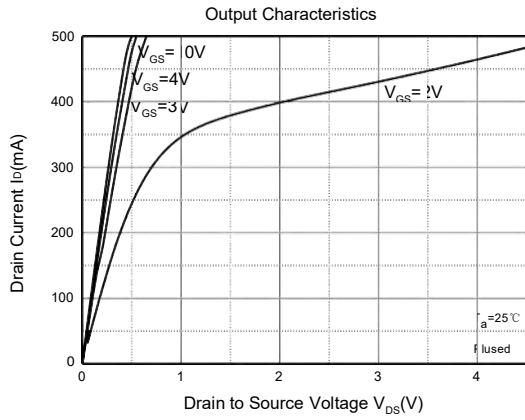
Parameter	Symbol	Test Condition	Min	Type	Max	Unit	
<b>Static Characteristics</b>							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	50			V	
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 50V, V_{GS} = 0V$			0.5	$\mu A$	
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 5.0$	$\mu A$	
Gate threshold voltage <sup>1</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1mA$	0.8	1.2	1.5	V	
Drain-source on-resistance <sup>1</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 220mA$		1.0	3.5	$\Omega$	
		$V_{GS} = 4.5V, I_D = 220mA$		1.1	6.0		
Forward transconductance <sup>1</sup>	$g_{FS}$	$V_{DS} = 10V, I_D = 220mA$		0.15		S	
<b>Dynamic characteristics<sup>2</sup></b>							
Input Capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		26.5		pF	
Output Capacitance	$C_{oss}$				12.9		
Reverse Transfer Capacitance	$C_{rss}$				5.9		
<b>Switching Characteristics<sup>1,2</sup></b>							
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, I_D = 290mA,$ $V_{GS} = 10V, R_G = 6\Omega$			5	nS	
Turn-on rise time	$t_r$				18		
Turn-off delay time	$t_{d(off)}$				36		
Turn-off fall time	$t_f$				14		
<b>Source-Drain Diode characteristics<sup>1</sup></b>							
Diode Forward voltage	$V_{DS}$	$I_S = 440mA, V_{GS} = 0V$			1.4	V	

### Notes:

1. Pulse Test ; Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
2. These parameters have no way to verify.

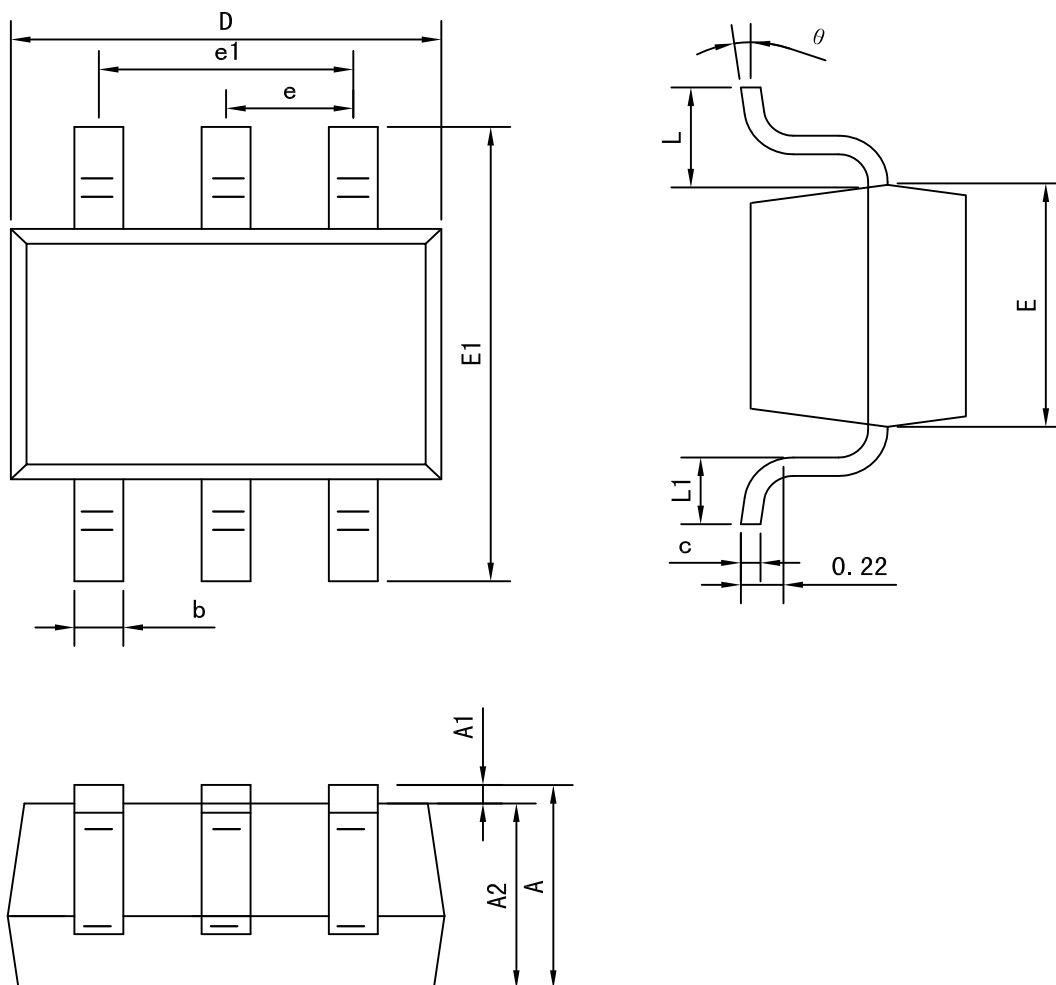


### Typical Electrical and Thermal Characteristics





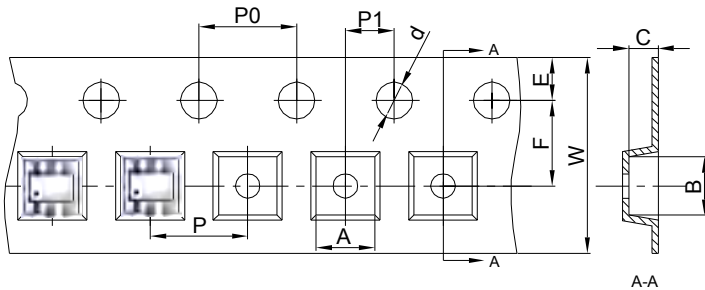
## SOT-363 Package outline dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°



### SOT-363 Embossed Carrier Tape



#### Packaging Description:

SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### SOT-363 Tape Leader and Trailer

