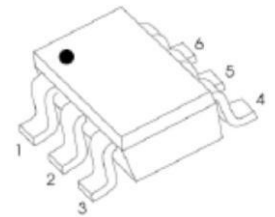
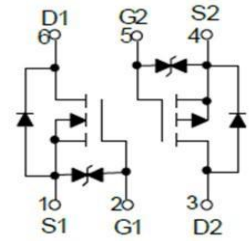




### MT3439KDW 20V N-Channel +P-Channel MOSFET

#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-20V	520mΩ@-4.5V	-0.66A
	780mΩ@-2.5V	
	950mΩ(TYP)@-1.8V	
20V	380mΩ@4.5V	0.75A
	450mΩ@2.5V	
	800mΩ@1.8V	



#### Feature

- Surface Mount Package
- Low  $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected Gate

#### Application

- Load/ Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics

SOT-363

MARKING: 49K

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

Parameter	Symbol	Value	Unit
<b>P-MOSFET</b>			
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	±12	V
Continuous Drain Current <sup>(1)</sup>	$I_D$	-0.66	A
Pulsed Drain Current ( $t_p=10\mu s$ )	$I_{DM}$	-1.2	A
<b>N-MOSFET</b>			
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±8	V
Continuous Drain Current <sup>(1)</sup>	$I_D$	0.75	A
Pulsed Drain Current( $t_p=10\mu s$ )	$I_{DM}$	1.8	A
<b>Temperature and Thermal Resistance</b>			
Thermal Resistance from Junction to Ambient <sup>(1)</sup>	$R_{\theta JA}$	833	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}C$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	$T_L$	260	$^{\circ}C$



### P-channel 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$			-1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			$\pm 20$	$\mu A$
Gate threshold voltage <sup>(2)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-0.60	-1.1	V
Drain-source on-resistance <sup>(2)</sup>	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$		450	520	m $\Omega$
		$V_{GS} = -2.5V, I_D = -0.8A$		650	780	
		$V_{GS} = -1.8V, I_D = -0.5A$		950		
Forward tranconductance <sup>(2)</sup>	$g_{FS}$	$V_{DS} = -10V, I_D = -0.54A$		1.2		S
Diode forward voltage	$V_{DS}$	$I_S = -0.5A, V_{GS} = 0V$			-1.2	V
<b>Dynamic characteristics<sup>(4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$		113		pF
Output Capacitance	$C_{oss}$			15		
Reverse Transfer Capacitance	$C_{rss}$			9		
<b>Switching Characteristics<sup>(3,4)</sup></b>						
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -10V, I_D = -200mA,$ $V_{GS} = -4.5V, R_G = 10\Omega$		9		ns
Turn-on rise time	$t_r$			5.7		
Turn-off delay time	$t_{d(off)}$			32.6		
Turn-off fall time	$t_f$			20.3		

### N-channel 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			$\pm 20$	$\mu A$
Gate threshold voltage <sup>(2)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35	0.75	1.1	V
Drain-source on-resistance <sup>(2)</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 650mA$		190	380	m $\Omega$
		$V_{GS} = 2.5V, I_D = 550mA$		260	450	
		$V_{GS} = 1.8V, I_D = 450mA$		390	800	
Forward tranconductance	$g_{FS}$	$V_{DS} = 10V, I_D = 800mA$		1.6		S
Diode Forward voltage <sup>(3)</sup>	$V_{DS}$	$I_S = 0.15A, V_{GS} = 0V$			1.2	V
<b>Dynamic characteristics<sup>(4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		79	120	pF
Output Capacitance	$C_{oss}$			13	20	
Reverse Transfer Capacitance	$C_{rss}$			9	15	
<b>Switching Characteristics<sup>(3,4)</sup></b>						
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 10V, I_D = 500mA,$ $V_{GS} = 4.5V, R_G = 10\Omega$		6.7		ns
Turn-on rise time	$t_r$			4.8		ns
Turn-off delay time	$t_{d(off)}$			17.3		ns
Turn-off fall time	$t_f$			7.4		ns

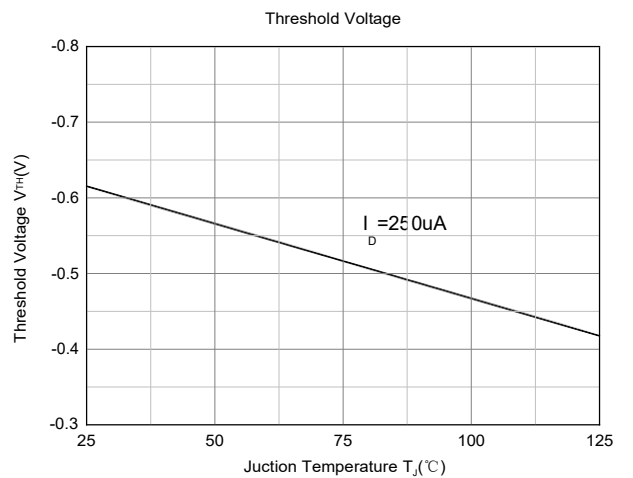
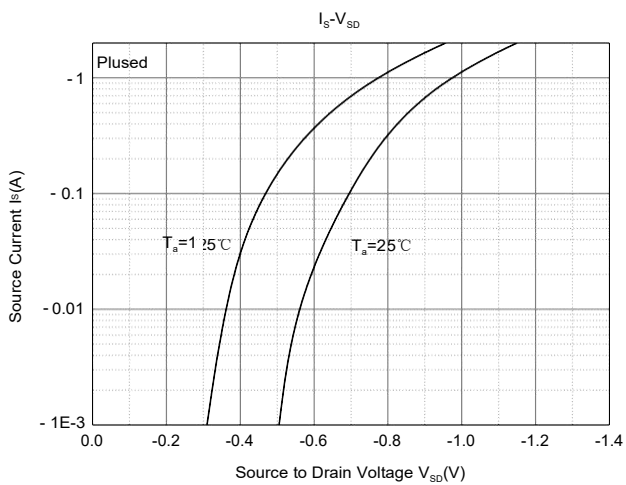
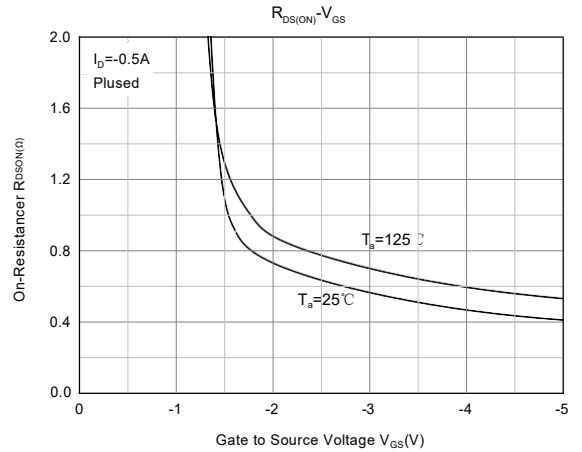
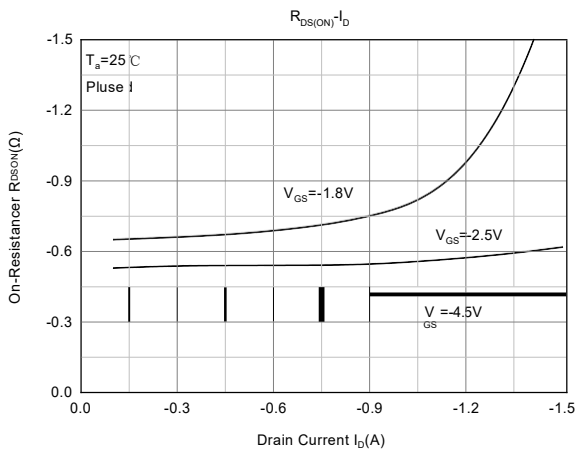
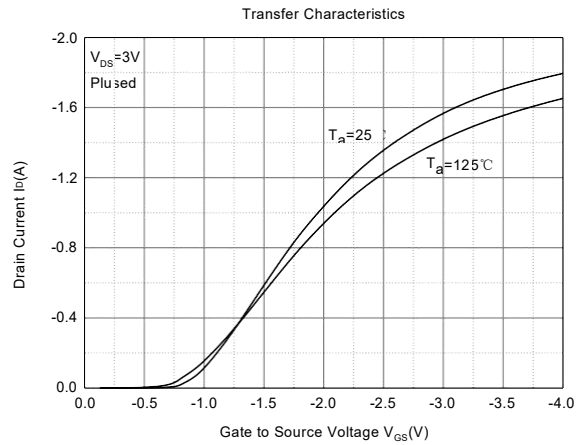
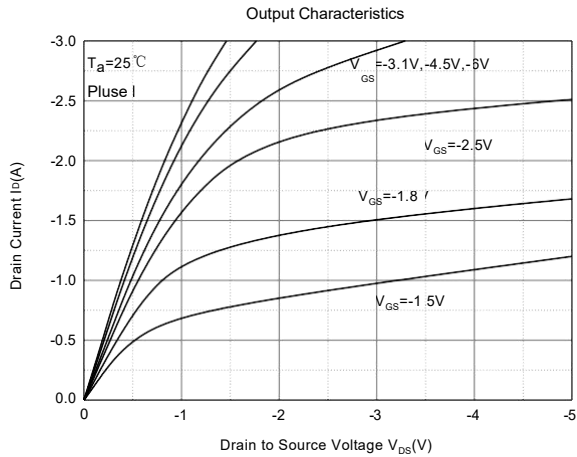
#### Notes:

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



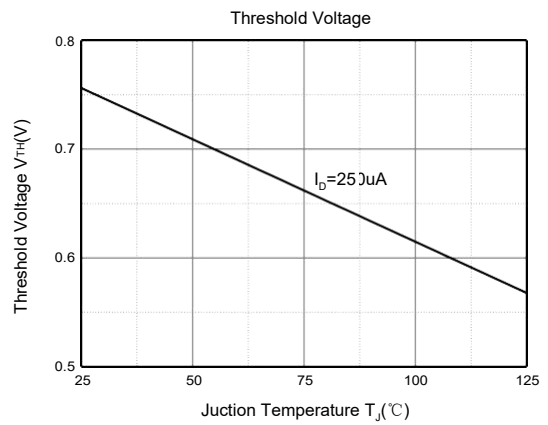
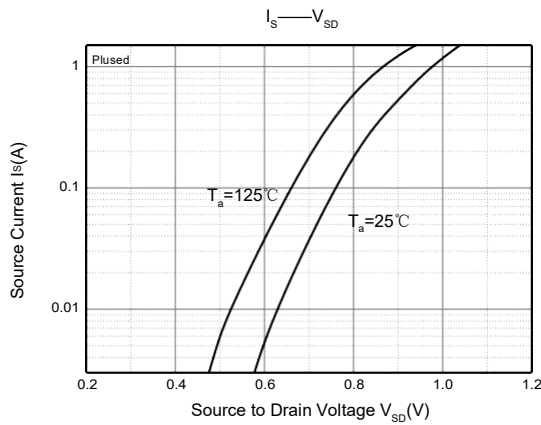
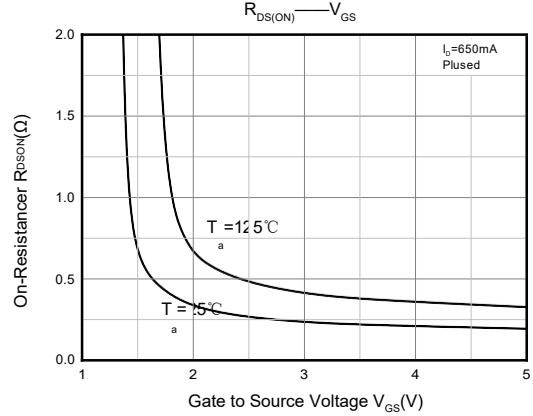
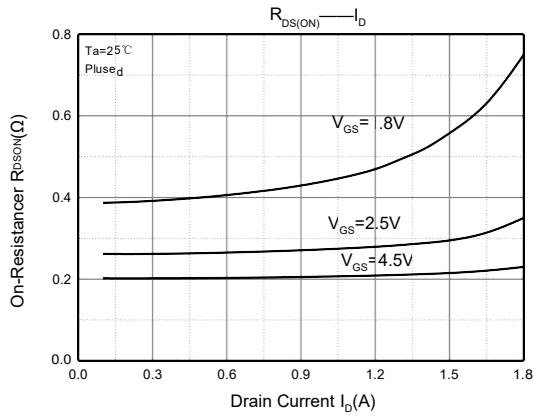
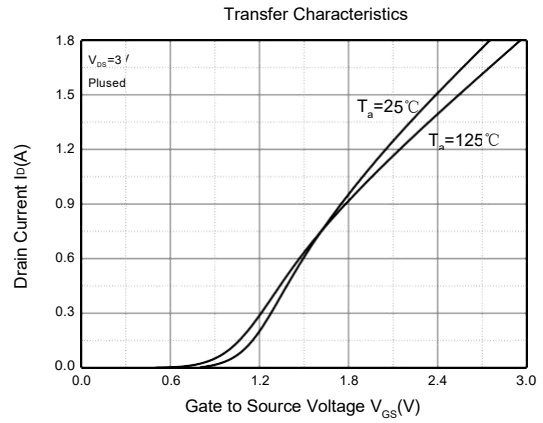
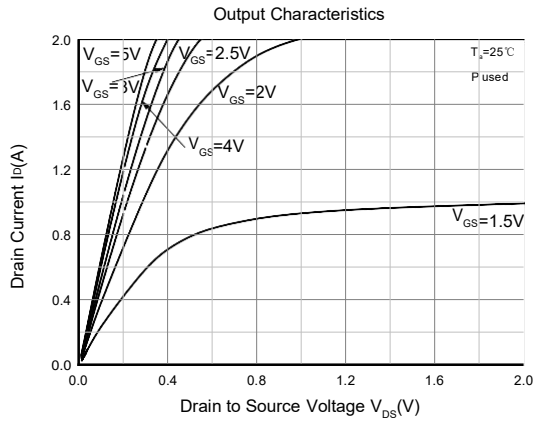
### Typical Electrical and Thermal Characteristics

#### P-Channel MOS



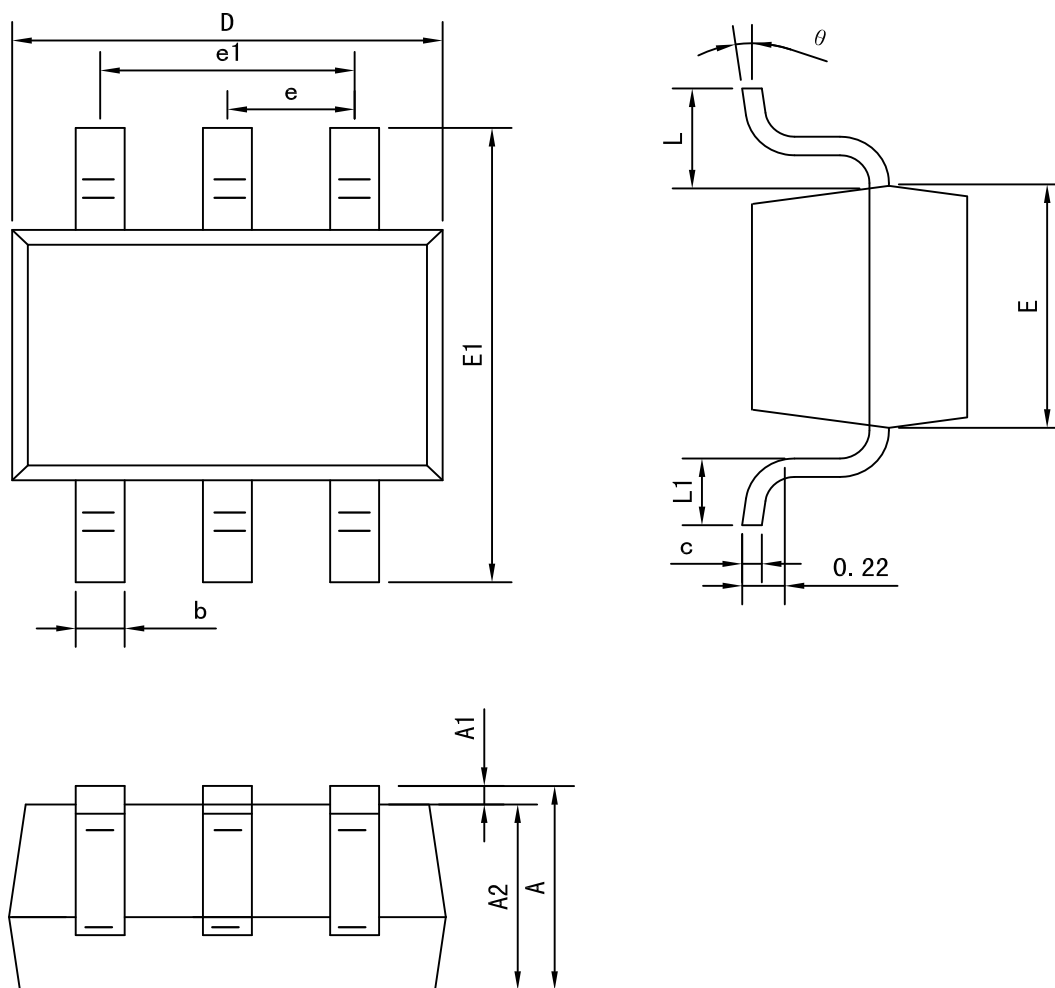


## N-Channel MOS





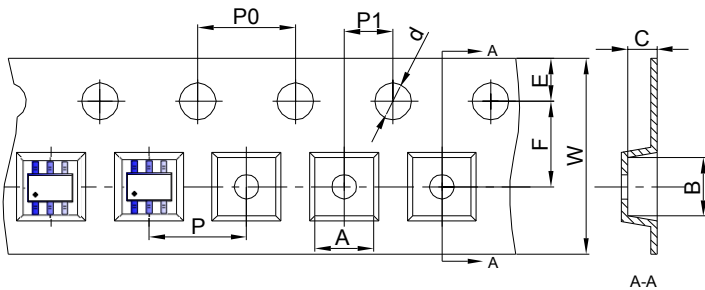
## SOT-363 Package outline dimensions



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

