

## CJ3139KDW-G (Dual P-Channel)

RoHS Device



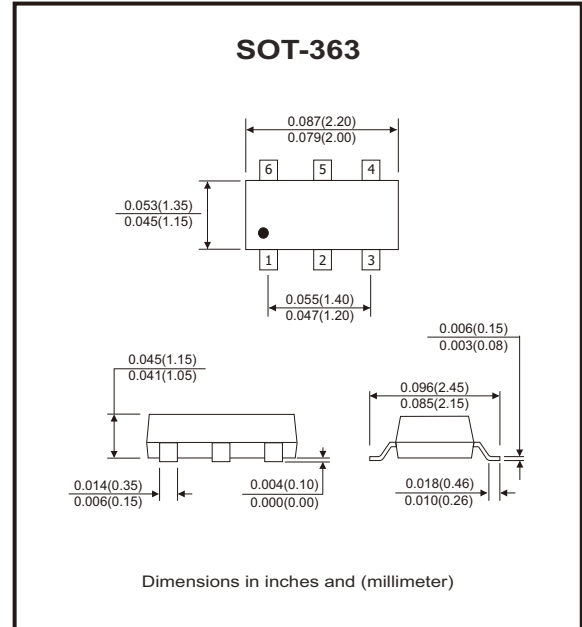
V(BR)DSS	RDS(on)MAX	ID
-20V	520mΩ @ -4.5V	-0.66A
	700mΩ @ -2.5V	
	950mΩ(TYP) @ -1.8V	

### Features

- High-side switching.
- Low on-resistance.
- Low threshold.
- Fast switching speed.

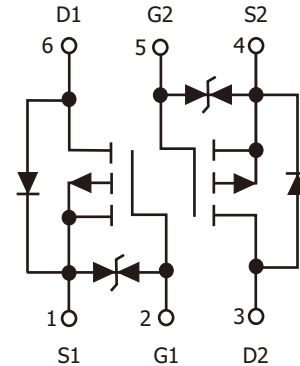
### Mechanical data

- Case: SOT-363, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Weight: 0.006 grams (approx.).



### Circuit Diagram

G : Gate  
S : Source  
D : Drain



### Maximum Ratings (at Ta=25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V <sub>DSS</sub>	-20	V
Typ. Gate-source voltage	V <sub>GS</sub>	±12	V
Drain current-continuous	I <sub>D(DC)</sub>	-0.66	A
Drain current-pulsed (Note 1)	I <sub>DM(pulse)</sub>	-2.64	A
Power dissipation (Note 2)	P <sub>D</sub>	150	mW
Thermal resistance from junction to ambient	R <sub>θJA</sub>	833	°C/W
Junction temperature range	T <sub>J</sub>	-40 to +150	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate threshold voltage (Note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35		-1.1	V
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			$\pm 20$	$\mu A$
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$			-1	$\mu A$
Drain-source on-state resistance (Note 3)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$			520	m $\Omega$
		$V_{GS} = -2.5V, I_D = -800mA$			700	
		$V_{GS} = -1.8V, I_D = -500mA$		950		
Forward transconductance	$g_{fs}$	$V_{DS} = -10V, I_D = -540mA$	0.8			S
<b>Dynamic characteristics (Note 4)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -16V, V_{GS} = 0V$ $f = 1MHz$			170	pF
Output capacitance	$C_{oss}$				25	
Reverse transfer capacitance	$C_{rss}$				15	
<b>Switching time (Note 4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -10V, I_D = -200mA$ $V_{GS} = -4.5V, R_G = 10\Omega$		9		nS
Rise time	$t_r$			5.8		
Turn-off delay time	$t_{d(off)}$			32.7		
Fall time	$t_f$			20.3		
<b>Drain-source diode characteristics</b>						
Drain-source diode forward voltage (Note 3)	$V_{SD}$	$I_S = -0.5A, V_{GS} = 0V$			-1.2	V

Notes: 1. Repetitive rating: Pulse width limited by maximum junction temperature.

2. This test is performed with no heat sink at  $T_a=25^\circ C$ .

3. Pulse test: Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 0.5\%$ .

4. These parameters have no way to verify.

## Rating and Characteristic Curves (CJ3139KDW-G)

Fig.1 - Output Characteristics

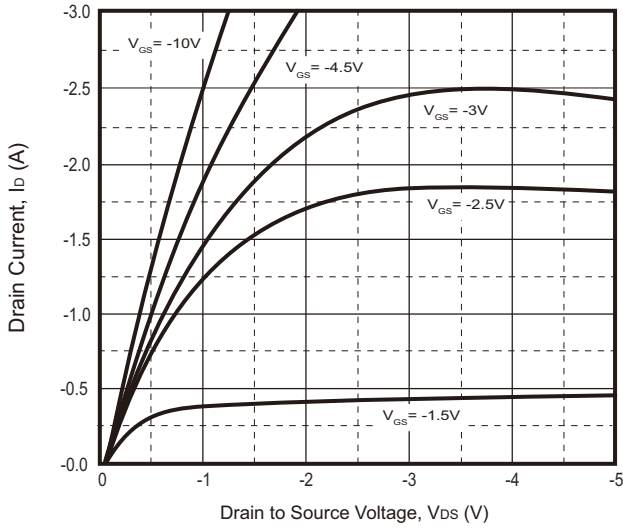


Fig.2 - Transfer Characteristics

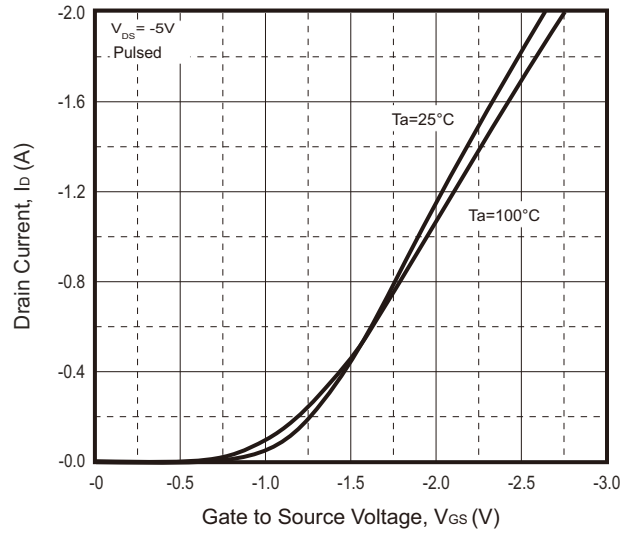


Fig.3 -  $R_{DS(ON)}$  —  $I_D$

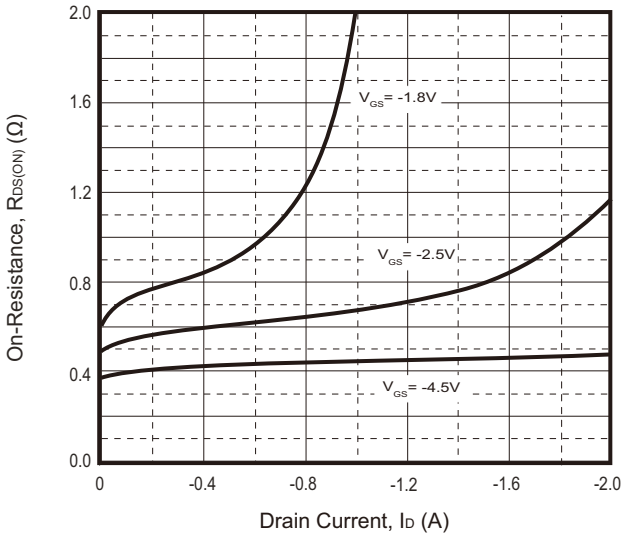


Fig.4 -  $R_{DS(ON)}$  —  $V_{GS}$

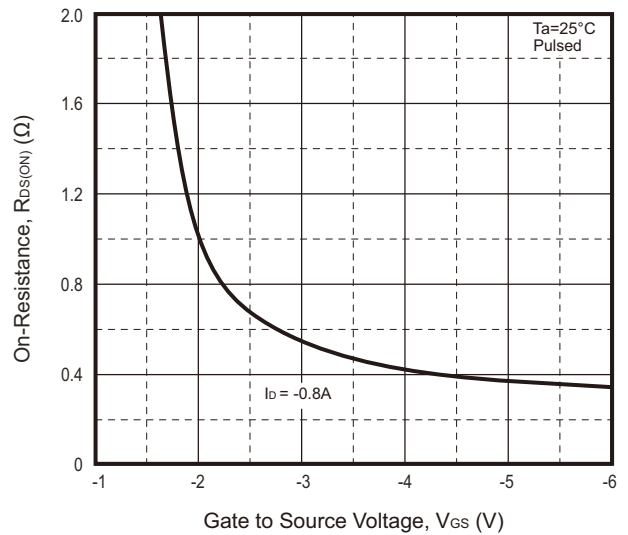


Fig.5 -  $I_S$  —  $V_{SD}$

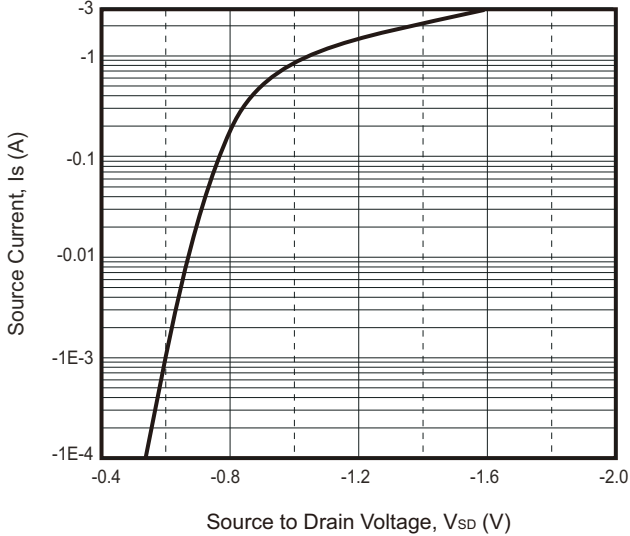
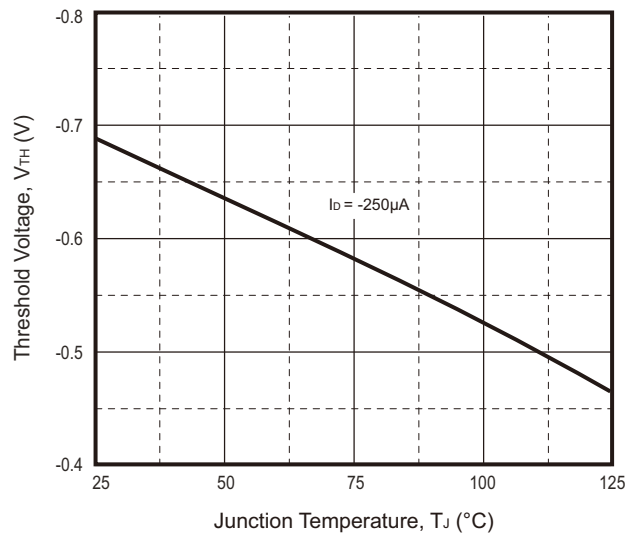
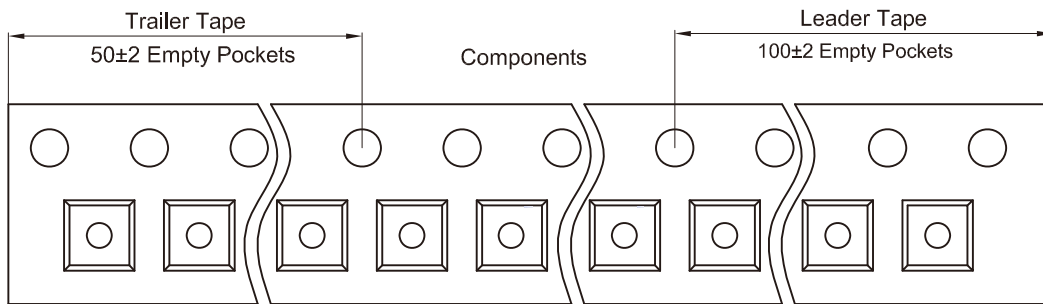
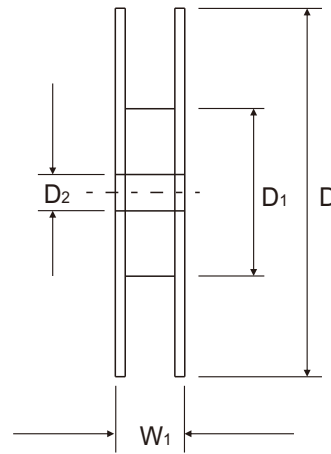
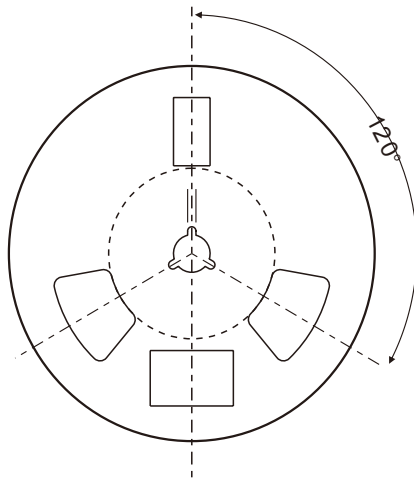
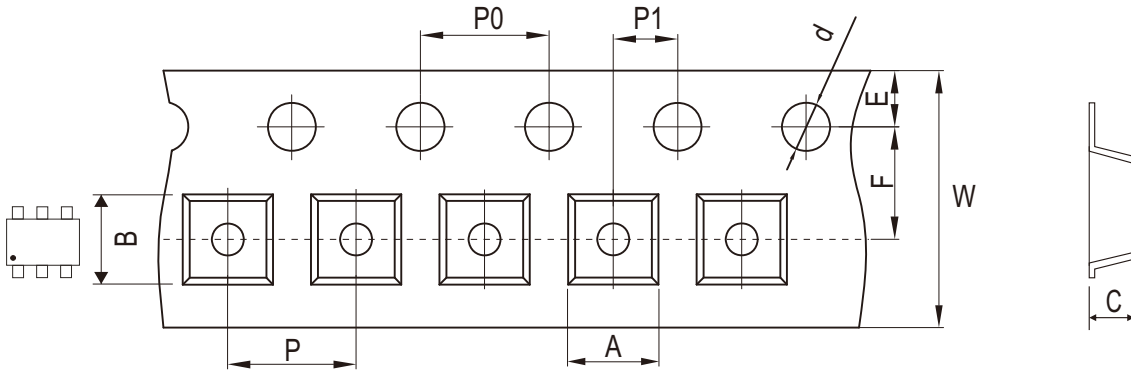


Fig.6 - Threshold Voltage



Company reserves the right to improve product design, functions and reliability without notice.

Reel Taping Specification



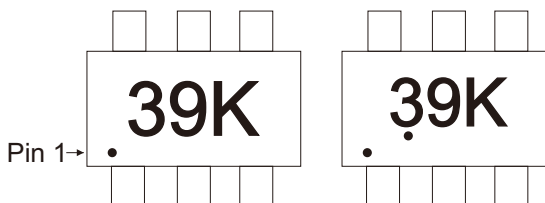
	SYMBOL	A	B	C	d	D	D1	D2
SOT-363	(mm)	2.25 ± 0.05	2.55 ± 0.05	1.20 ± 0.05	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.089 ± 0.002	0.100 ± 0.002	0.047 ± 0.002	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P0	P1	W	W1
SOT-363	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30/-0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012/-0.004	0.484 ± 0.039

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## Marking Code

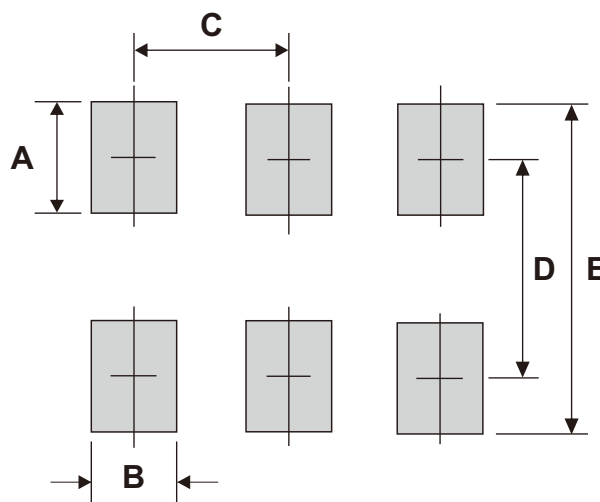
Part Number	Marking Code
CJ3139KDW-G	39K



Solid dot = Control code

## Suggested P.C.B. PAD Layout

SIZE	SOT-363	
	(mm)	(inch)
A	0.80	0.032
B	0.40	0.016
C	0.65	0.026
D	1.94	0.076
E	2.74	0.108



## Standard Packaging

Case Type	REEL PACK	
	REEL ( pcs )	Reel Size (inch)
SOT-363	3,000	7