MOSFET

CJ3139KDW-HF

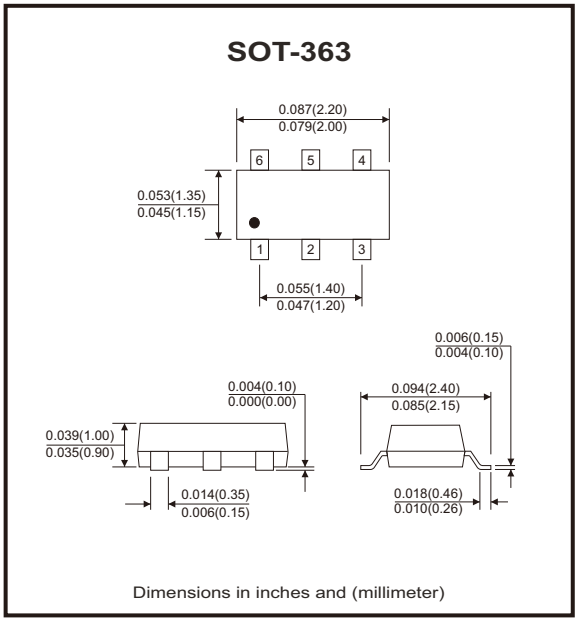
Dual P-Channel
RoHS Device
Halogen Free

Features

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

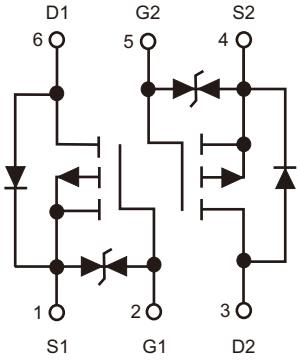
Mechanical data

- Case: SOT-363, molded plastic.
- Mounting position: Any.



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_{DSS}	-20	V
Typical gate-source voltage	V_{GS}	±12	V
Drain current-continuous	$I_{D(DC)}$	-0.66	A
Drain current-pulsed (Note 1)	$I_{DM(pulse)}$	-2.64	A
Power dissipation (Note 2)	P_D	150	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	833	°C/W
Junction temperature	T_J	150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
On/Off States						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20			V
Gate threshold voltage (Note 3)	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.35	-0.45	-1.1	V
Gate-body leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±10V			±20	μA
Zero gate voltage drain current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V			-1	μA
Drain-source on-state resistance (Note 3)	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -1A		430	520	mΩ
		V_{GS} = -2.5V, I_D = -800mA		624	700	
		V_{GS} = -1.8V, I_D = -500mA		950		
Forward transconductance	g_{FS}	V_{DS} = -10V, I_D = -540mA	0.8			S
Dynamic characteristics (Note 4)						
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	
Switching time (Note 4)						
Turn-on delay time	$t_{d(on)}$	V_{DD} = -10V, I_D = -200mA V_{GS} = -4.5V, R_G = 10Ω		9		nS
Rise time	t_r			5.8		
Turn-off delay time	$t_{d(off)}$			32.7		
Fall time	t_f			20.3		
Drain-source diode characteristics						
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 temperture.
2. This test is performed with no heat sink at Ta=25°C.
3. Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
4. These parameters have no way to verify.

Rating and Characteristic Curves (CJ3139KDW-HF)

Fig.1 - Output Characteristics

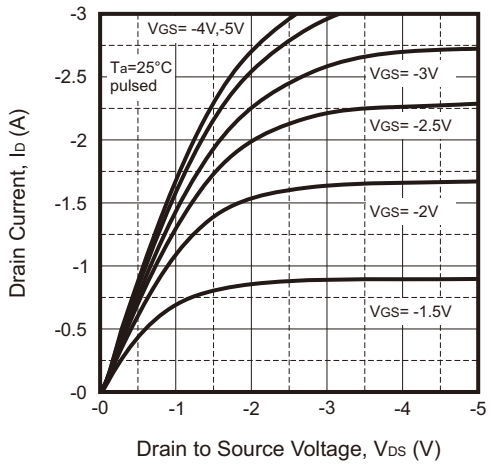


Fig.2 - Transfer Characteristics

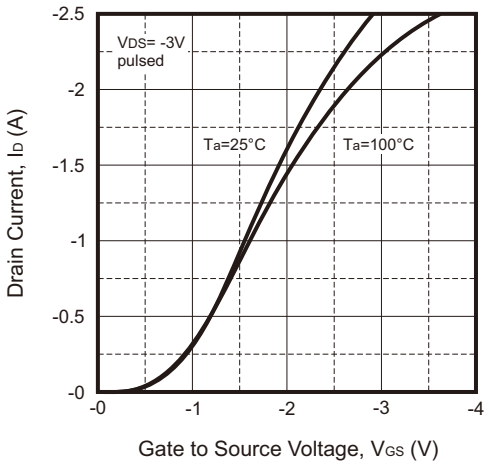


Fig.3 - $R_{DS(ON)}$ — I_D

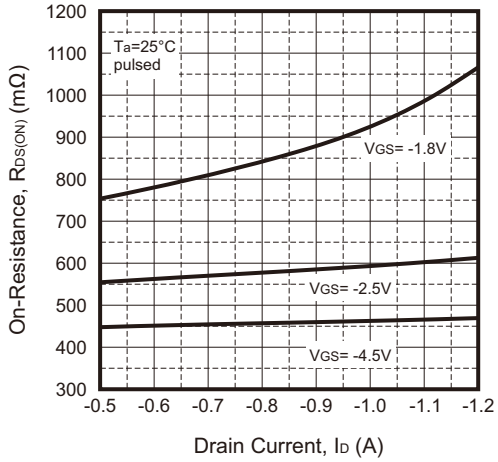


Fig.4 - $R_{DS(ON)}$ — V_{GS}

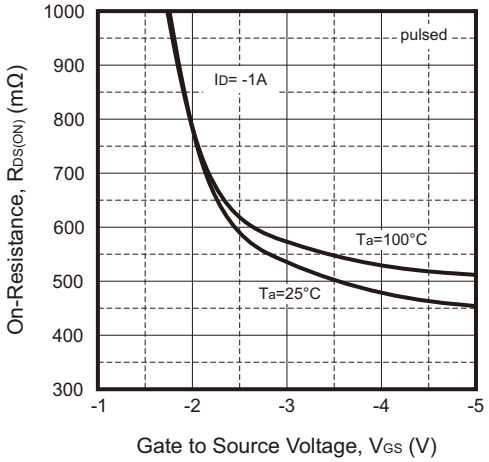


Fig.5 - I_S — V_{SD}

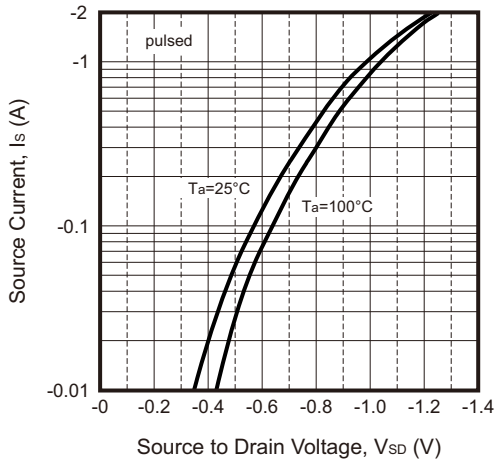
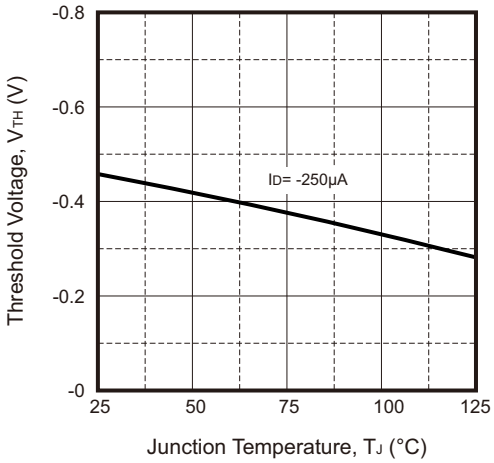
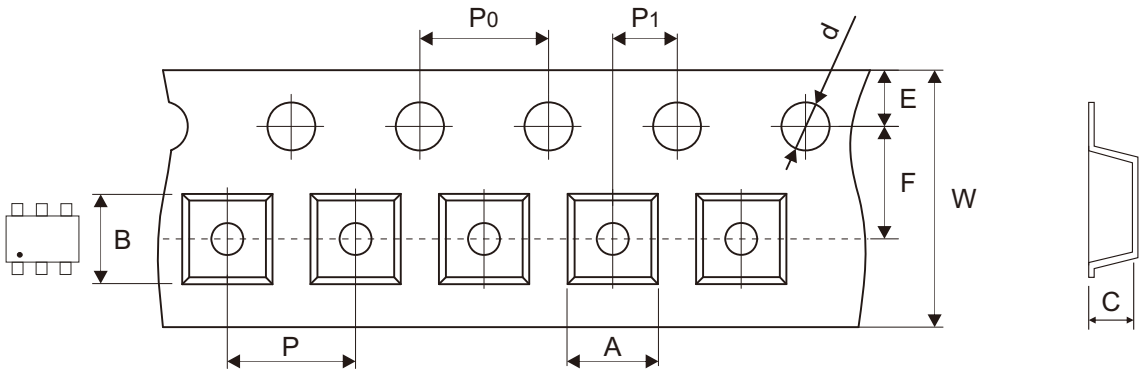
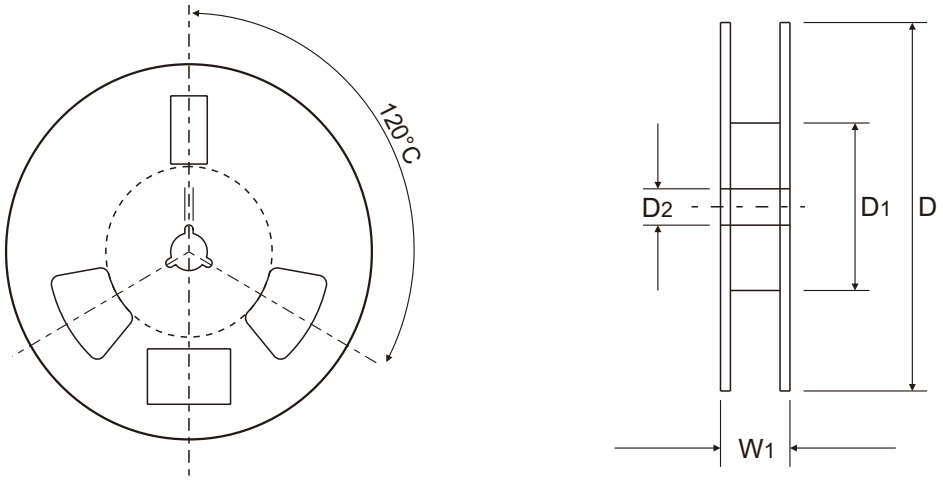


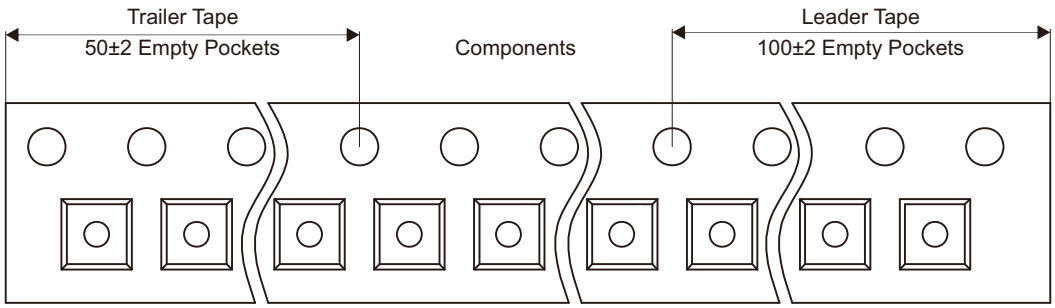
Fig.6 - Threshold Voltage



Reel Taping Specification





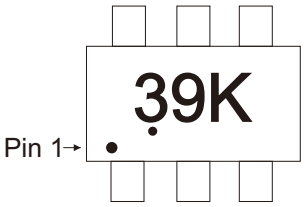


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-363	(mm)	2.25 ± 0.10	2.55 ± 0.10	1.20 ± 0.10	1.50 + 0.10 − 0.00	178.00 ± 1.00	54.40 ± 0.40	13.00 ± 0.20
	(inch)	0.089 ± 0.004	0.100 ± 0.004	0.047 ± 0.004	0.059 + 0.004 − 0.000	7.008 ± 0.039	2.142 ± 0.016	0.512 ± 0.008

	SYMBOL	E	F	P	P_0	P_1	W	W_1
SOT-363	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 − 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 − 0.004	0.484 ± 0.039

Marking Code

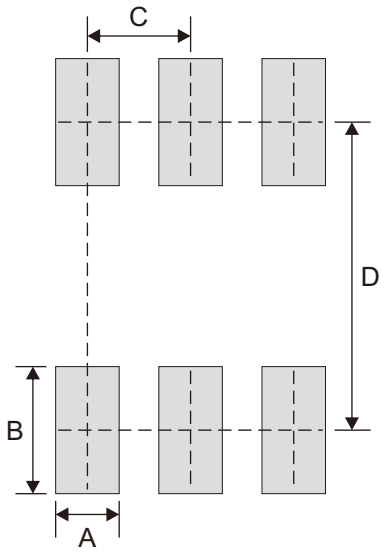
Part Number	Marking Code
CJ3139KDW-HF	39K



Solid dot = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-363	
	(mm)	(inch)
A	0.40	0.016
B	0.80	0.031
C	0.65	0.026
D	1.94	0.076



Standard Packaging

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