



SOT-323 Plastic-Encapsulate MOSFETS

CJ3139KW P-Channel Power MOSFET

GENERAL DESCRIPTION

This Single P-Channel MOSFET has been designed using advanced Power Trench process to optimize the $R_{DS(ON)}$.

FEATURE

- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed

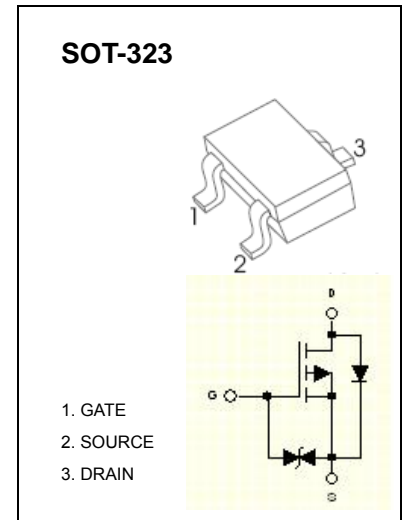
APPLICATION

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

MARKING: 39K

Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	
Drain Current-Continuous	I_D	-0.66	A
Drain Current -Pulsed(note1)	I_{DM}	-2.64	
Power Dissipation (note 2)	P_D	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Storage Temperature	T_j	150	$^\circ\text{C}$
Junction Temperature	T_{stg}	-55 ~ +150	



Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	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		-1.1	
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V			±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			520	mΩ
		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
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 Times (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 temperature.
2. This test is performed with no heat sink at T_a=25°C.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.
4. These parameters have no way to verify.