



Description

The HCJ3139K uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = -20V$ $I_D = -0.66A$

$R_{DS(ON)} < 560\text{ m}\Omega @ V_{GS} = -4.5V$

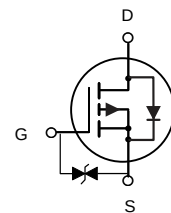
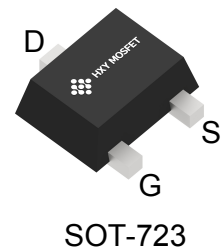
ESD Rating: 1500V HBM

Application

Load/Power Switching

Interfacing Switching

Battery Management for Ultra Small Portable Electronics



P-Channel MOSFET

Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HCJ3139K	SOT-723	KD	8000

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Drain Current-Continuous	-0.66	A
I_{DM}	Drain Current-Pulsed (Note 1)	-1.2	A
P_D	Maximum Power Dissipation	0.15	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	850	$^\circ\text{C/W}$



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

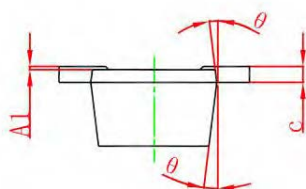
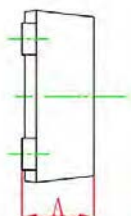
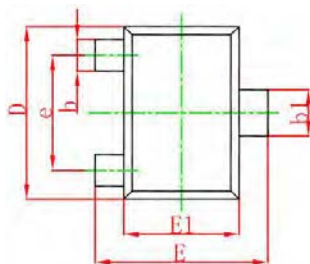
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±10	μA
Gate threshold voltage (note2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
Drain-source on-resistance (note2)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -0.5A			0.56	Ω
		V _{GS} = -2.5V, I _D = -0.2A			0.78	Ω
Maximum Continuous Drain to Source Diode Forward Current	I _S	--			-0.6	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}	--			-1.2	A
Diode forward voltage	V _{SD}	I _S = -0.5A, V _{GS} = 0V			-1.2	V
Input capacitance	C _{iss}	V _{DS} = -16V, V _{GS} = 0V, f = 1MHz		115		pF
Output capacitance	C _{oss}			15		pF
Reverse transfer capacitance	C _{rss}			9		pF
Turn-on delay time (note3)	t _{d(on)}	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -200mA, R _{GEN} = 10Ω		9		nS
Turn-on rise time (note3)	t _r			6		nS
Turn-off delay time (note3)	t _{d(off)}			33		nS
Turn-off fall time (note3)	t _f			22		nS

Notes:

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

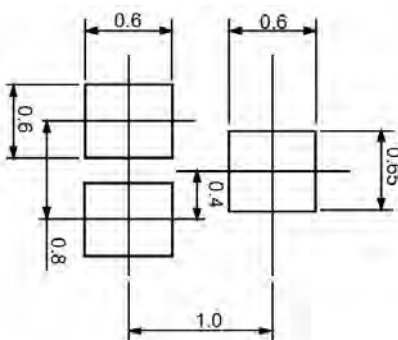


SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimet	
	Min	Max
A	0.42	0.50
A1	0.00	0.05
b	0.16	0.28
b1	0.25	0.35
c	0.07	0.16
D	1.10	1.30
e	0.8TYP	
E	1.10	1.30
E1	0.75	0.85
θ	8°	10°

Suggested Pad Layout (mm)





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