



Micro Commercial Components



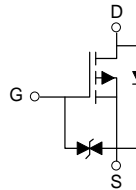
Micro Commercial Components  
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# SI3139KE

## P-Channel MOSFET

### Features

- Lead Free Product is Acquired
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Operated at Low Logic Level Gate Drive
- P-Channel Switch with Low  $R_{DS(on)}$
- Surface Mount Package
- Marking : 39K

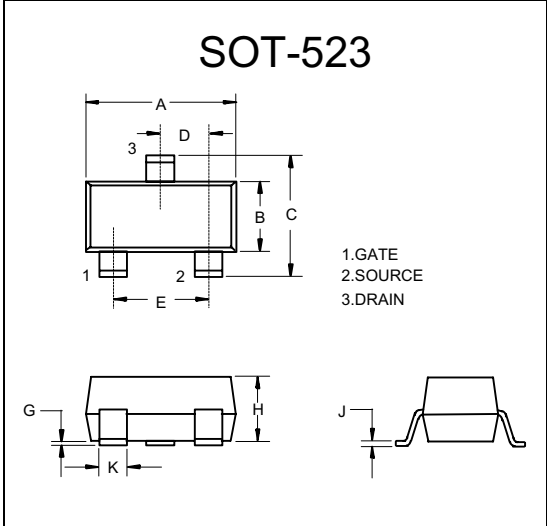


### Absolute maximum ratings @ 25°C

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-source Voltage	-20	V
$V_{GS}$	Gate-source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current	-0.66	A
$I_{DM}$	Pulsed Drain Current	-1.2	A
$P_D$	Total Power Dissipation	150	mW
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C
$T_L$	Lead Temperature for Soldering Purposes	260	°C
$R_{thJA}$	Thermal Resistance from Junction to Ambient	833	°C/W

### Electrical Characteristics @ 25°C Unless Otherwise Specified

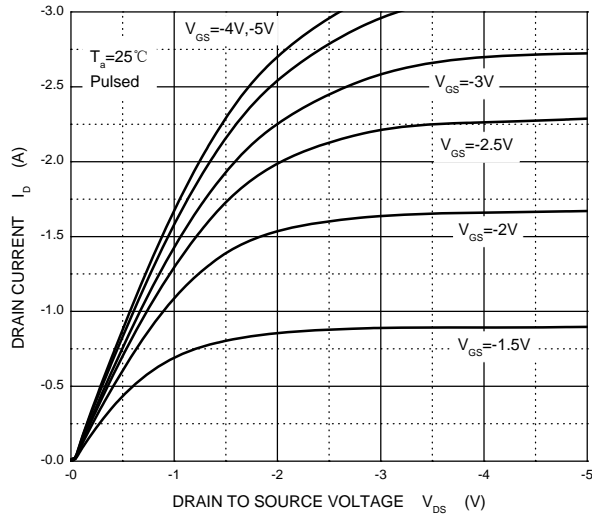
Symbol	Parameter	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage ( $V_{GS}=0V_{dc}$ , $I_D=-250\mu A_{dc}$ )	-20	---	---	Vdc
$V_{GS(th)}$	Gate-Threshold Voltage ( $V_{DS}=V_{GS}$ , $I_D=-250\mu A_{dc}$ )	-0.35	---	-1.1	Vdc
$I_{GSS}$	Gate-body Leakage ( $V_{DS}=0V_{dc}$ , $V_{GS}=\pm 10V_{dc}$ )	---	---	$\pm 20$	$\mu A$
$I_{DSS}$	Zero Gate Voltage Drain Current ( $V_{DS}=-20V_{dc}$ , $V_{GS}=0V_{dc}$ )	---	---	-1	$\mu A_{dc}$
$V_{SD}$	Diode Forward Voltage ( $I_S=-0.5A$ , $V_{GS}=0V$ )	---	---	-1.2	Vdc
$r_{DS(on)}$	Drain-Source On-Resistance ( $V_{GS}=-4.5V_{dc}$ , $I_D=-1A_{dc}$ ) ( $V_{GS}=-2.5V_{dc}$ , $I_D=-0.80A_{dc}$ ) ( $V_{GS}=-1.8V_{dc}$ , $I_D=0.5A_{dc}$ )	---	---	0.52 0.70 0.95	$\Omega$
$g_{FS}$	Forward transconductance ( $V_{DS}=-10V_{dc}$ , $I_D=0.54A_{dc}$ )	---	1.2	---	S
$C_{iss}$	Input Capacitance	---	113	170	pF
$C_{OSS}$	Output Capacitance	---	15	25	
$C_{rSS}$	Reverse Transfer capacitance	---	9	15	
$t_{d(on)}$	Turn-on Time	$V_{GS}=-4.5V$ , $V_{DS}=-10V$ , $I_D=-200mA$ $R_{GEN}=10\Omega$	---	9.0	ns
$t_{d(off)}$	Turn-off Time		---	32.7	
$t_r$	Rise Time		---	5.8	
$t_f$	Fall Time		---	20.3	



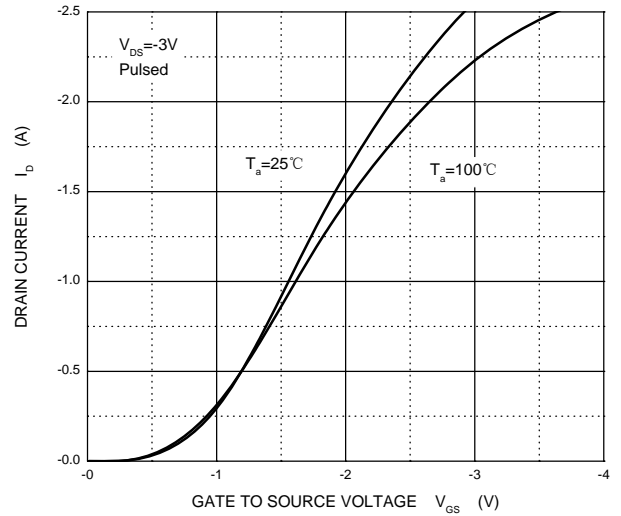
DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	

## Typical Characteristics

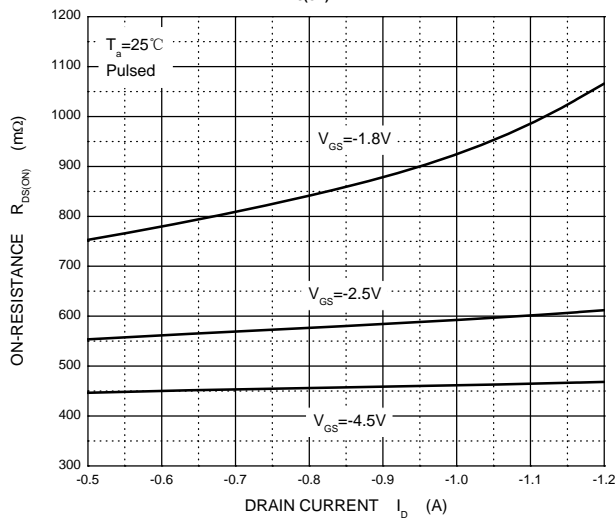
**Output Characteristics**



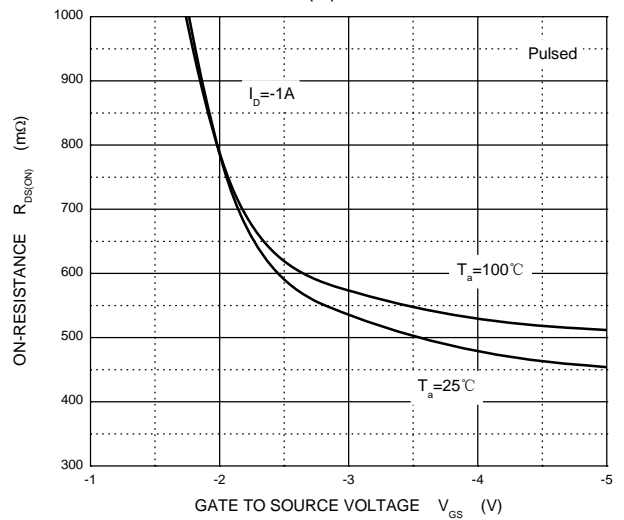
**Transfer Characteristics**



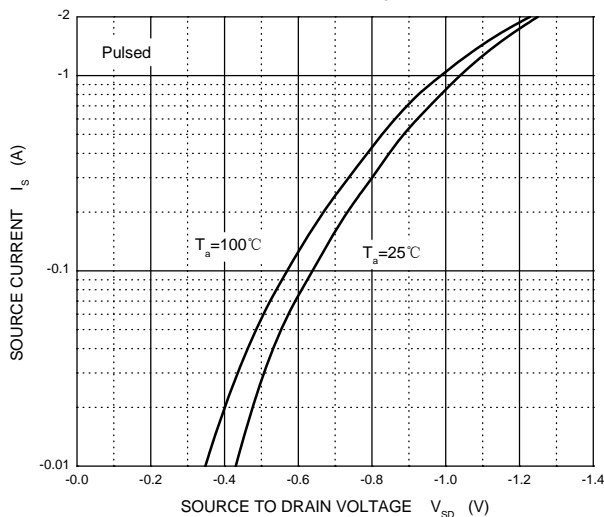
**$R_{DS(ON)}$  —  $I_D$**



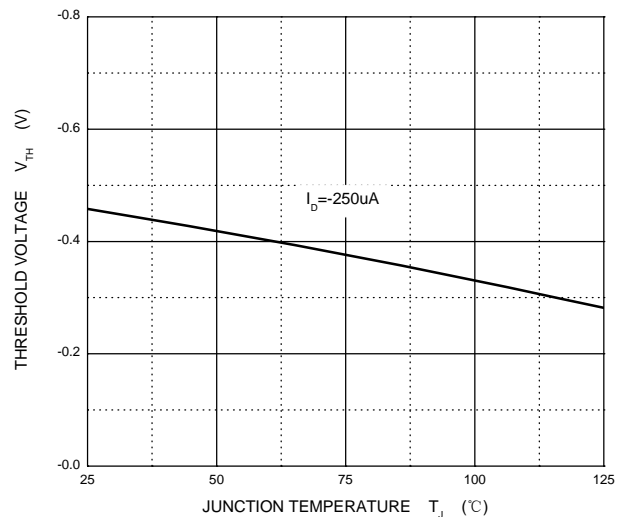
**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**



**Threshold Voltage**





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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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