



Micro Commercial Components



Micro Commercial Components
 20736 Marilla Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

SI3415

P-Channel Enhancement Mode Field Effect Transistor

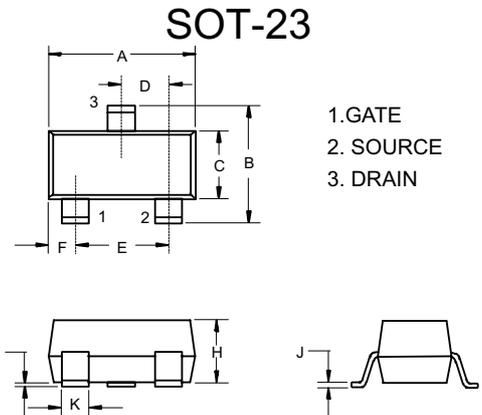
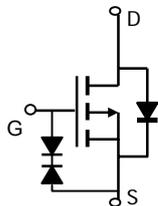
Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Excellent $R_{DS(ON)}$ low gate charge, low gate voltages
- Load switch and in PWM applications
- Marking Code: R15
- SOT-23 Package
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings @ 25°C Unless Otherwise Specified

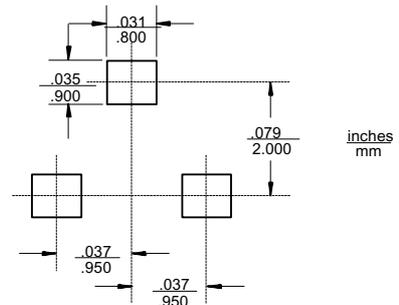
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-20	V
I_D	Drain Current-Continuous	-4.0	A
V_{GS}	Gate-source Voltage	± 8	V
P_D	Total Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	357	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$

Internal Block Diagram



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



SI3415

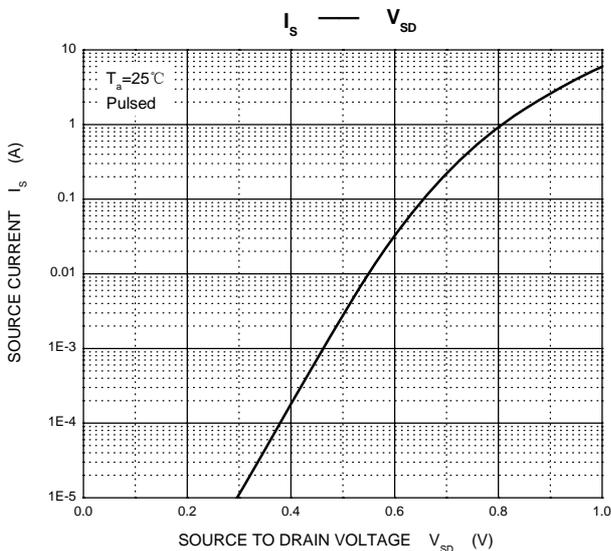
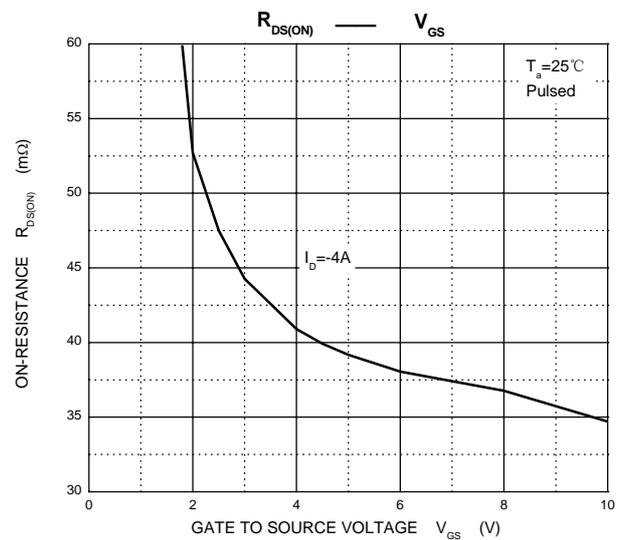
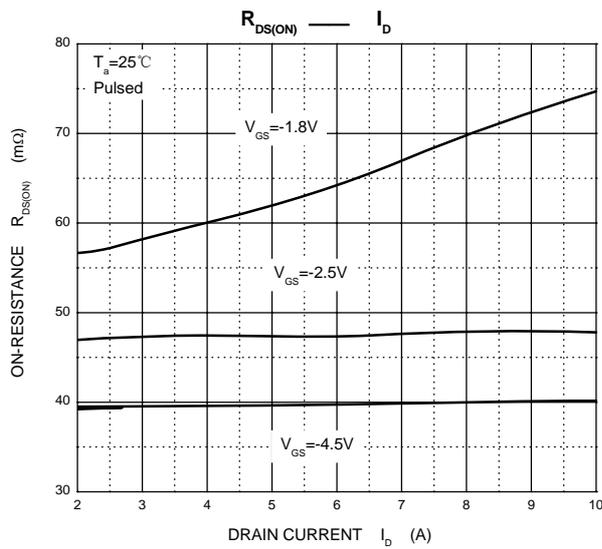
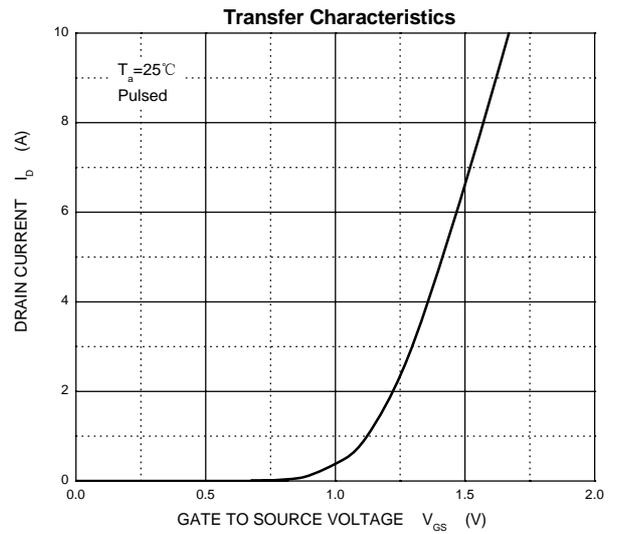
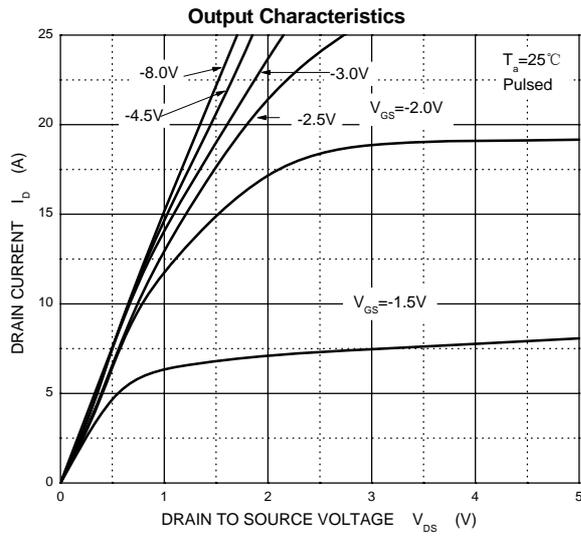
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Parameters						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.3		-1	
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±10	μA
		V _{DS} = 0V, V _{GS} = ±4.5V			±1	
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	
Drain-source on-state resistance(note1)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4A			0.050	Ω
		V _{GS} = -2.5V, I _D = -4A			0.060	
		V _{GS} = -1.8V, I _D = -2A			0.073	
Forward transconductance(note2)	g _{FS}	V _{DS} = -5V, I _D = -4A	8			S
Body diode voltage(note2)	V _{SD}	I _S = -1A, V _{GS} = 0V			-1	V
Dynamic Parameters (note3)						
Input capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		1450		pF
Output capacitance	C _{oss}			205		
Reverse transfer capacitance	C _{rss}			160		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		6.5		Ω
Switching Parameters						
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -4A		17.2		nC
Gate-Source charge	Q _{gs}			1.3		
Gate-drain charge	Q _{gd}			4.5		
Turn-on delay time (note3)	t _{d(on)}	V _{DS} = -10V, V _{GS} = -4.5V R _{GEN} = 3Ω, R _L = 2.5Ω,		9.5		ns
Turn-on rise time(note3)	t _r			17		
Turn-off delay time(note3)	t _{d(off)}			94		
Turn-off fall time(note3)	t _f			35		

Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. These parameters have no way to verify.

Typical characteristics





Micro Commercial Components

Ordering Information :

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

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

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . Micro Commercial Components Corp . does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold Micro Commercial Components Corp . and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.