



Micro Commercial Components



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SI2303

Features

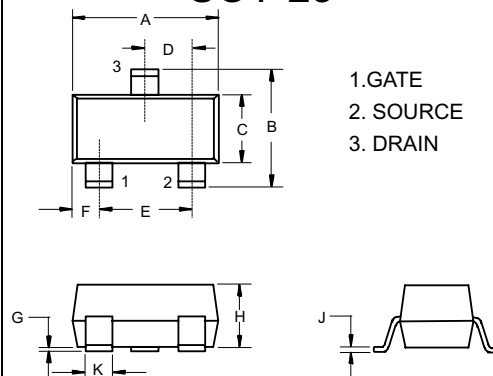
- Halogen free available upon request by adding suffix "-HF"
- -30V, -2.6A, $R_{DS(ON)}=130m\Omega$ @ $V_{GS}=-10V$
- -30V, -2.0A, $R_{DS(ON)}=180m\Omega$ @ $V_{GS}=-4.5V$
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- Lead free product is acquired
- SOT-23 Package
- Marking Code: S3
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-30	V
I_D	Drain Current-Continuous	-3	A
I_{DM}	Drain Current-Pulsed ^a	-10	A
V_{GS}	Gate-source Voltage	± 20	V
P_D	Total Power Dissipation	0.25	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient ^b	500	°C/W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

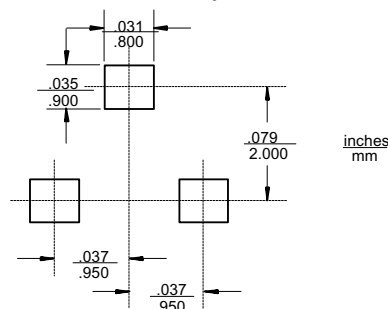
P-Channel Enhancement Mode Field Effect Transistor

SOT-23

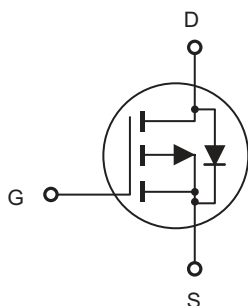


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



Internal Block Diagram





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Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -10μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
Gate Body Leakage Current, Forward	I _{GSSF}	V _{GS} = 20V, V _{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I _{GSSR}	V _{GS} = -20V, V _{DS} = 0V			-100	nA
On Characteristics ^c						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = -250μA	-1		-3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -2.6A			130	mΩ
		V _{GS} = -4.5V, I _D = -2.0A			180	mΩ
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -1.7A		2.4		S
Dynamic Characteristics ^d						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1.0 MHz		226		pF
Output Capacitance	C _{oss}			87		pF
Reverse Transfer Capacitance	C _{rss}			19		pF
Switching Characteristics ^d						
Turn-On Delay Time	t _{d(on)}	V _{DD} = -15V, I _D = -1A, V _{GEN} = -10V, R _G =6Ω, R _L =15Ω		9	20	ns
Turn-On Rise Time	t _r			9	20	ns
Turn-Off Delay Time	t _{d(off)}			18	35	ns
Turn-Off Fall Time	t _f			6	20	ns
Total Gate Charge	Q _g	V _{DS} = -15V, I _D = -1.7A, V _{GS} = -10V		5.8	10	nC
Gate-Source Charge	Q _{gs}			0.8		nC
Gate-Drain Charge	Q _{gd}			1.5		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Voltage ^c	V _{SD}	V _{GS} = 0V, I _S = -1.25A			-1.2	V

Notes :

a. Repetitive Rating : Pulse width limited by maximum junction temperature.

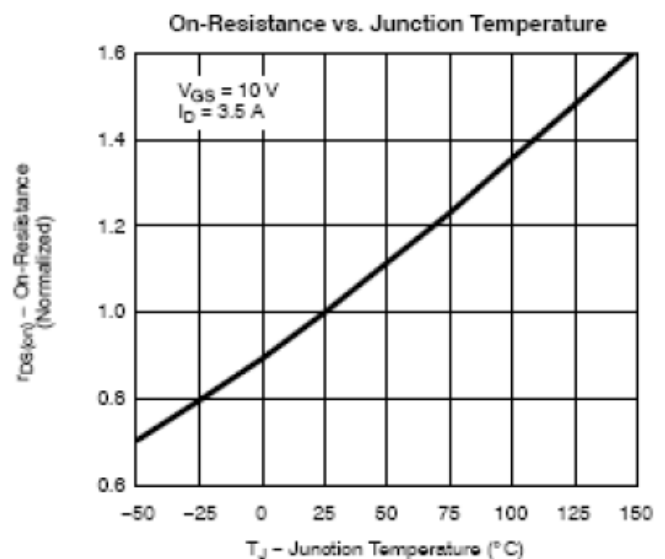
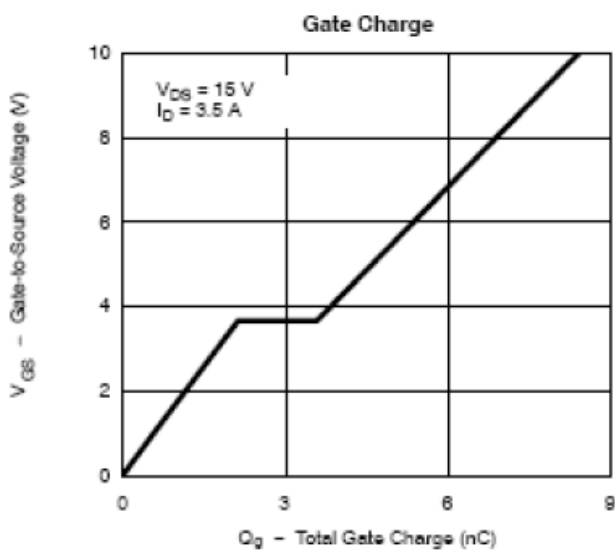
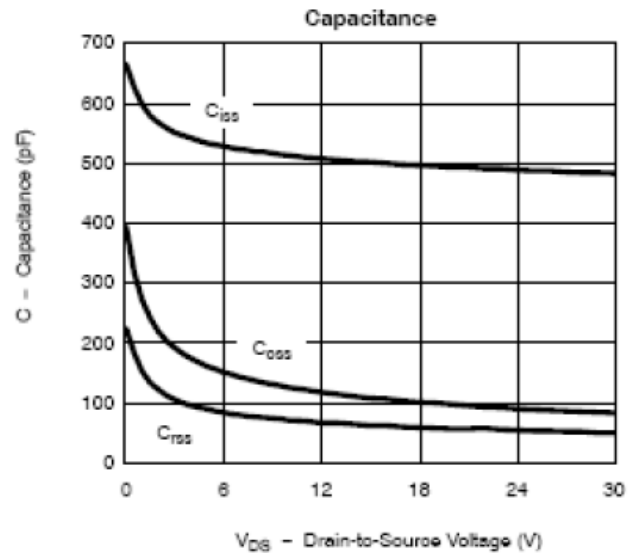
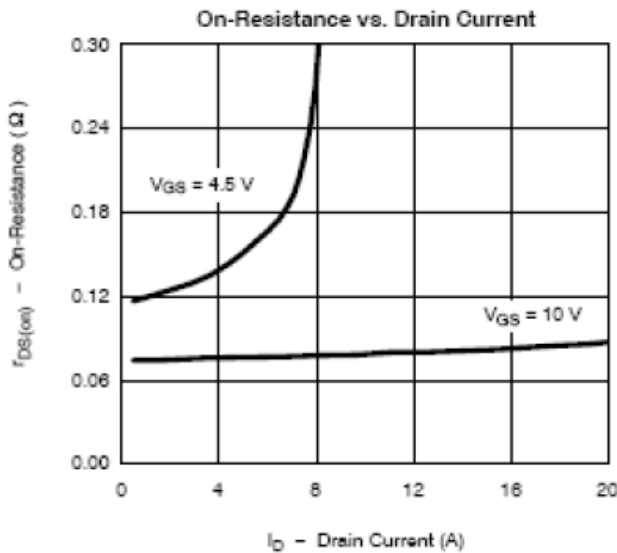
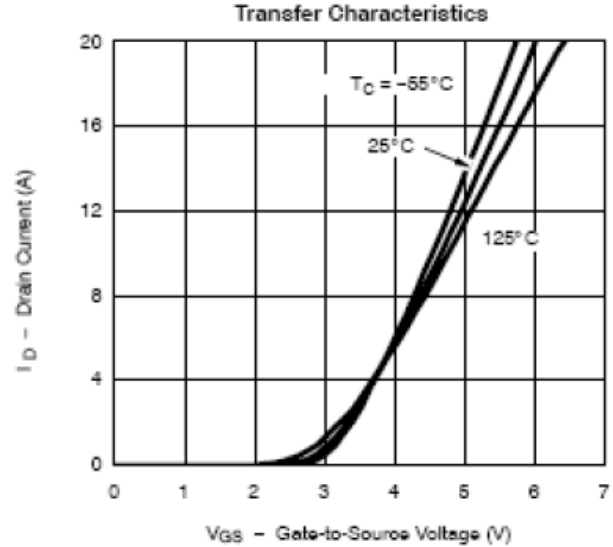
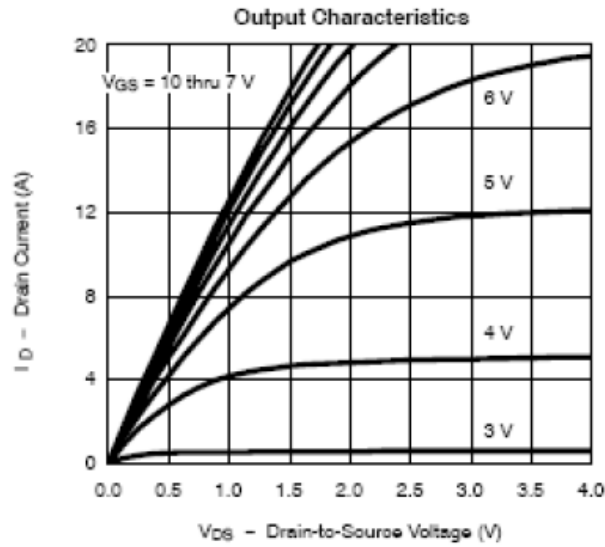
b. Surface Mounted on FR4 Board, $t < 10\text{ sec}$.

c. Pulse Test : Pulse Width $< 300\mu s$, Duty Cycle $< 2\%$.

d. Guaranteed by design, not subject to production testing.

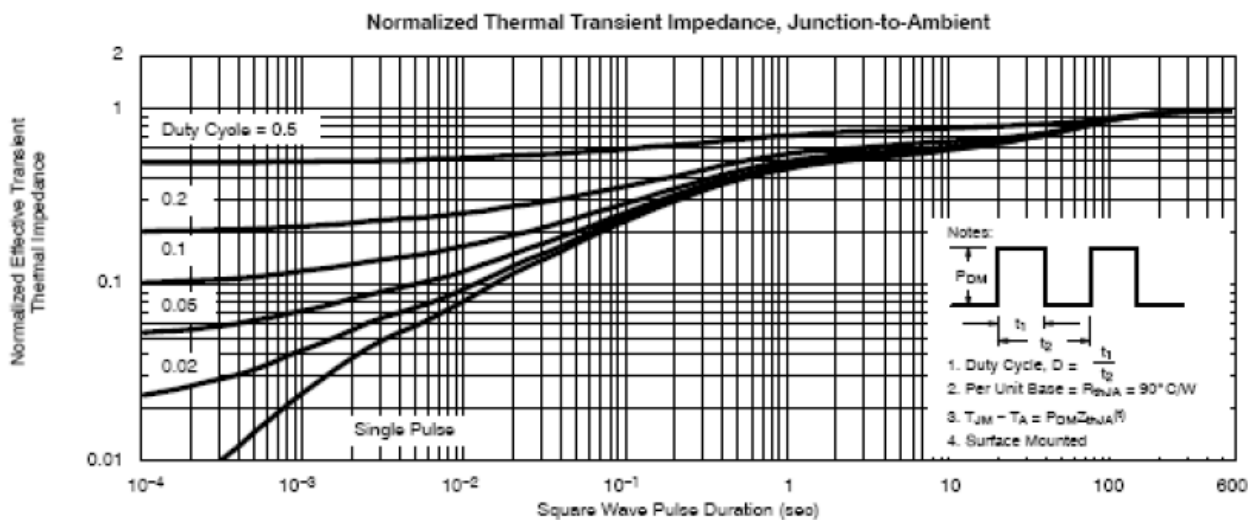
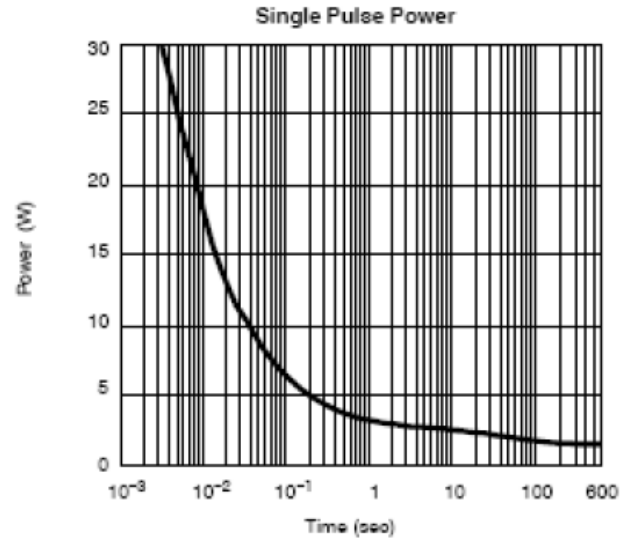
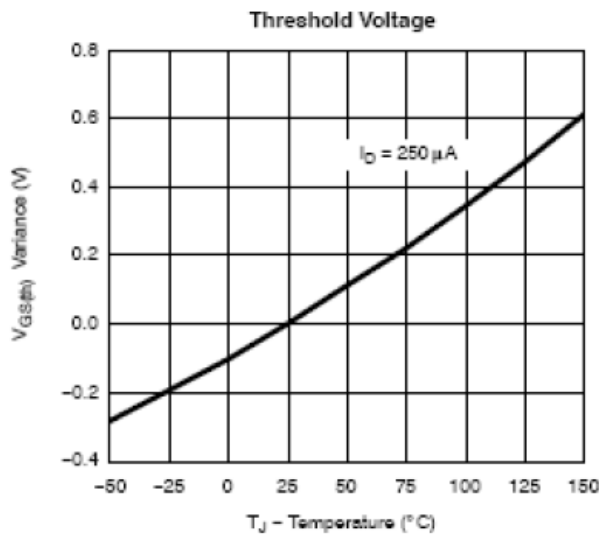
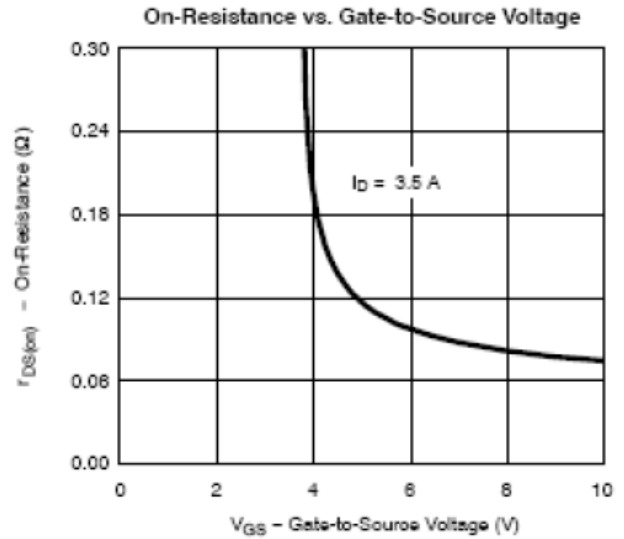
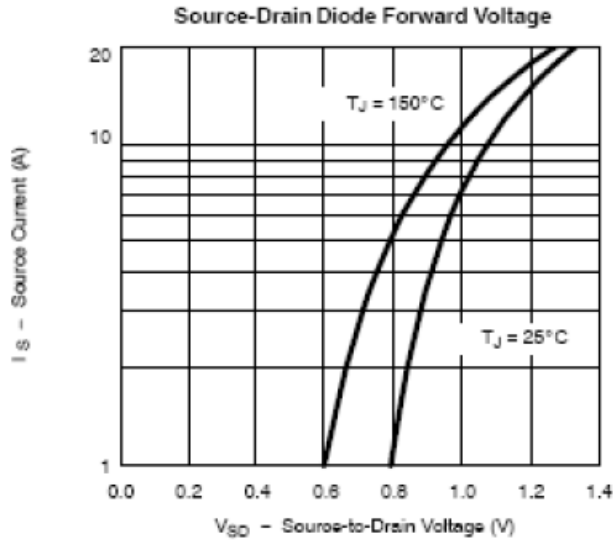
Typical characteristics

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Typical characteristics

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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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