



SPP2339 P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP2339 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

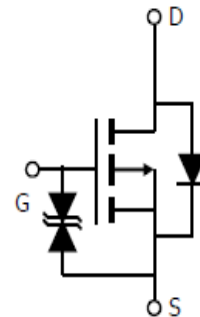
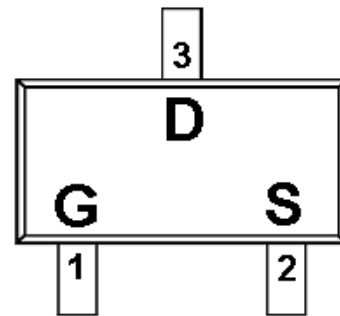
FEATURES

- ◆ $-20V/-4 A, R_{DS(ON)}= 41m\Omega @ V_{GS}=-4.5V$
- ◆ $-20V/-4 A, R_{DS(ON)}= 53m\Omega @ V_{GS}=-2.5V$
- ◆ $-20V/-2.3 A, R_{DS(ON)}= 85m\Omega @ V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23 package design

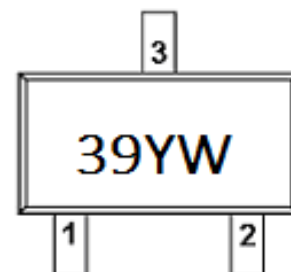
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(SOT-23)



PART MARKING



Y : Year Code
W : Week Code



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PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP2339S23RGB	SOT-23	39YW

- ※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)
- ※ SPP2339S23RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V _{DSS}	-20	V	
Gate –Source Voltage	V _{GSS}	±12	V	
Continuous Drain Current(T _J =150°C)	I _D	TA=25°C	-4.0	A
		TA=70°C	-2.8	
Pulsed Drain Current	I _{DM}	-12	A	
Continuous Source Current(Diode Conduction)	I _S	-1.0	A	
Power Dissipation	P _D	TA=25°C	1.25	W
		TA=70°C	0.8	
Operating Junction Temperature	T _J	-55/150	°C	
Storage Temperature Range	T _{STG}	-55/150	°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	140	°C/W	



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ELECTRICAL CHARACTERISTICS

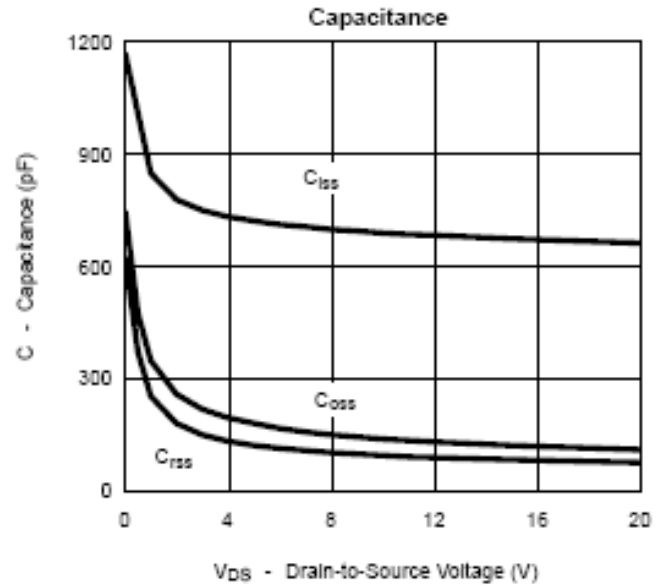
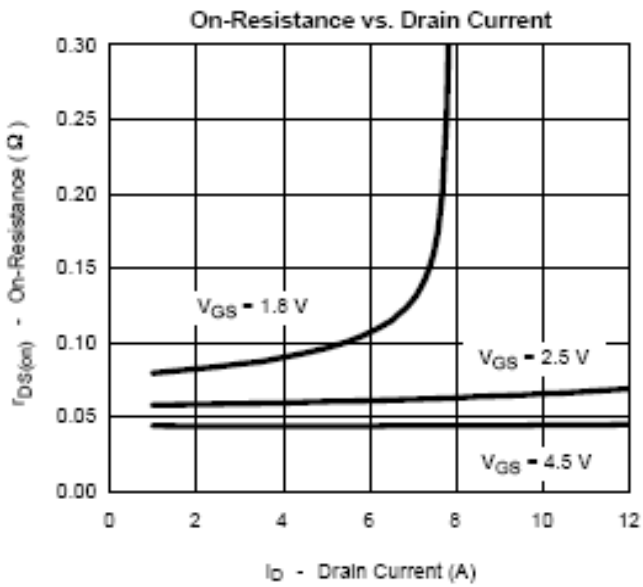
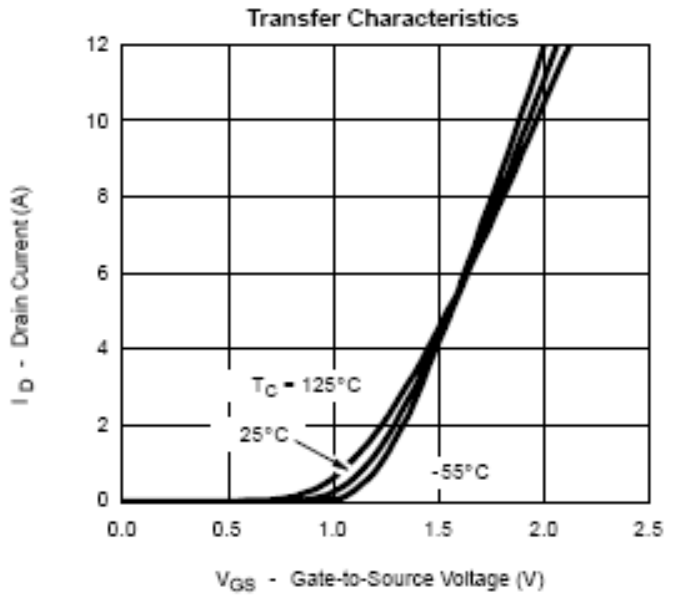
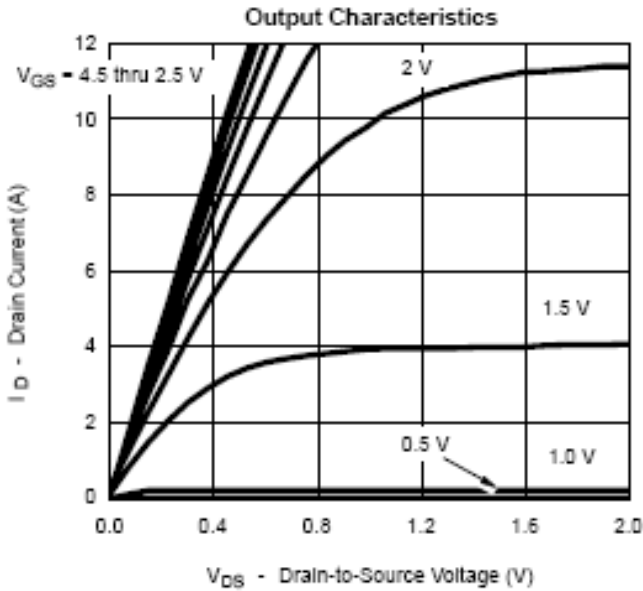
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.3		-0.9	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
		$V_{DS}=-20V, V_{GS}=0V$ $T_J=55^\circ C$			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -5V, V_{GS}=-4.5V$	-6			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-4A$		0.036	0.041	Ω
		$V_{GS}=-2.5V, I_D=-4A$		0.045	0.053	
		$V_{GS}=-1.8V, I_D=-2.3A$		0.075	0.085	
Forward Transconductance	g_{fs}	$V_{DS}=-5.0V, I_D=-3.3A$		3		S
Diode Forward Voltage	V_{SD}	$I_S=-1.6A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D=-4A$		10		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.2		
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V$ $f=1MHz$		750		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=2.5\Omega$ $R_G=3\Omega, V_{GS}=-4.5V$		15.6		ns
	t_r			11.2		
Turn-Off Time	$t_{d(off)}$			23.1		
	t_f			32.7		



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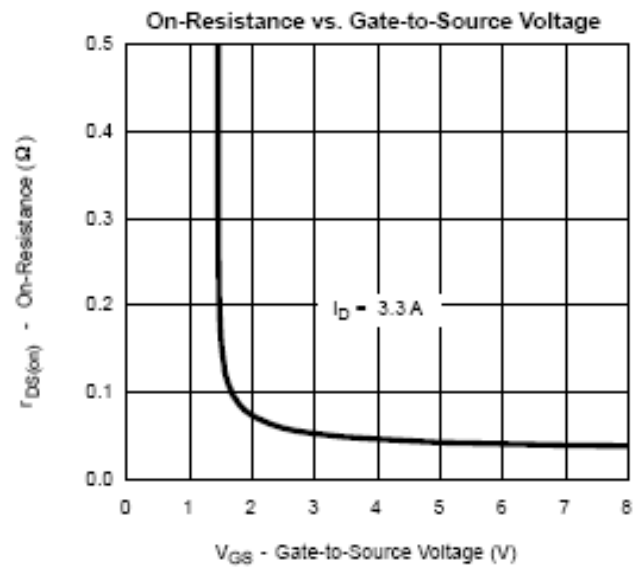
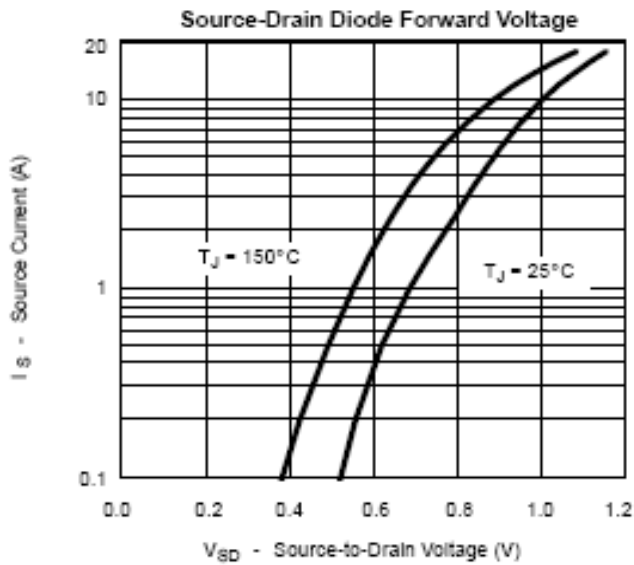
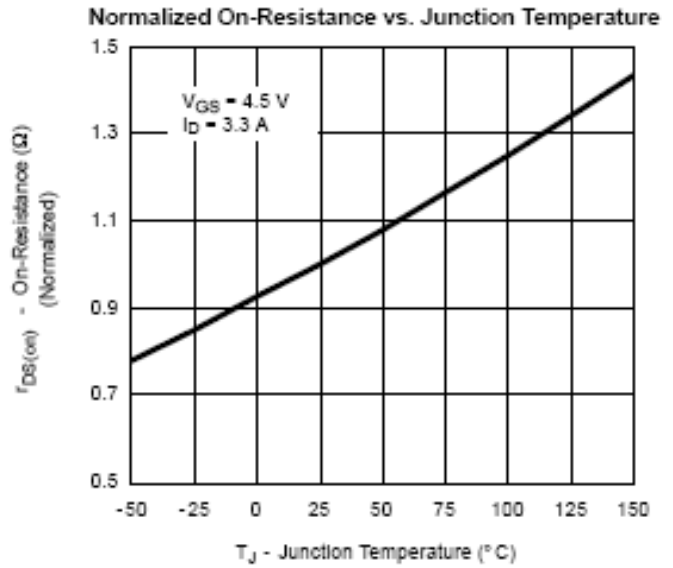
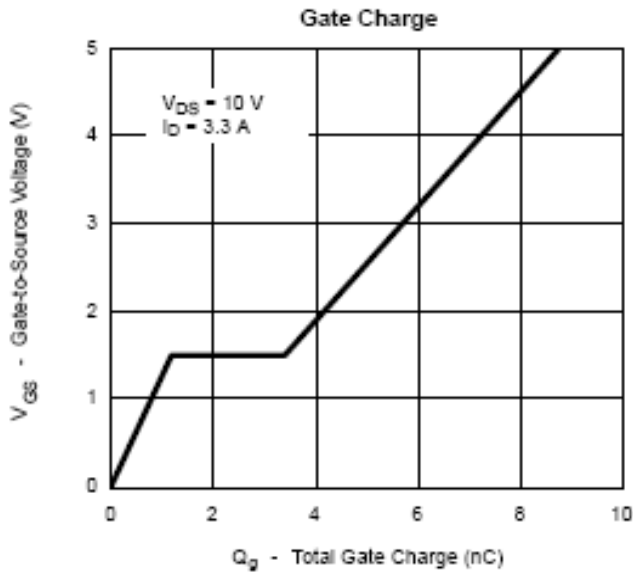
TYPICAL CHARACTERISTICS





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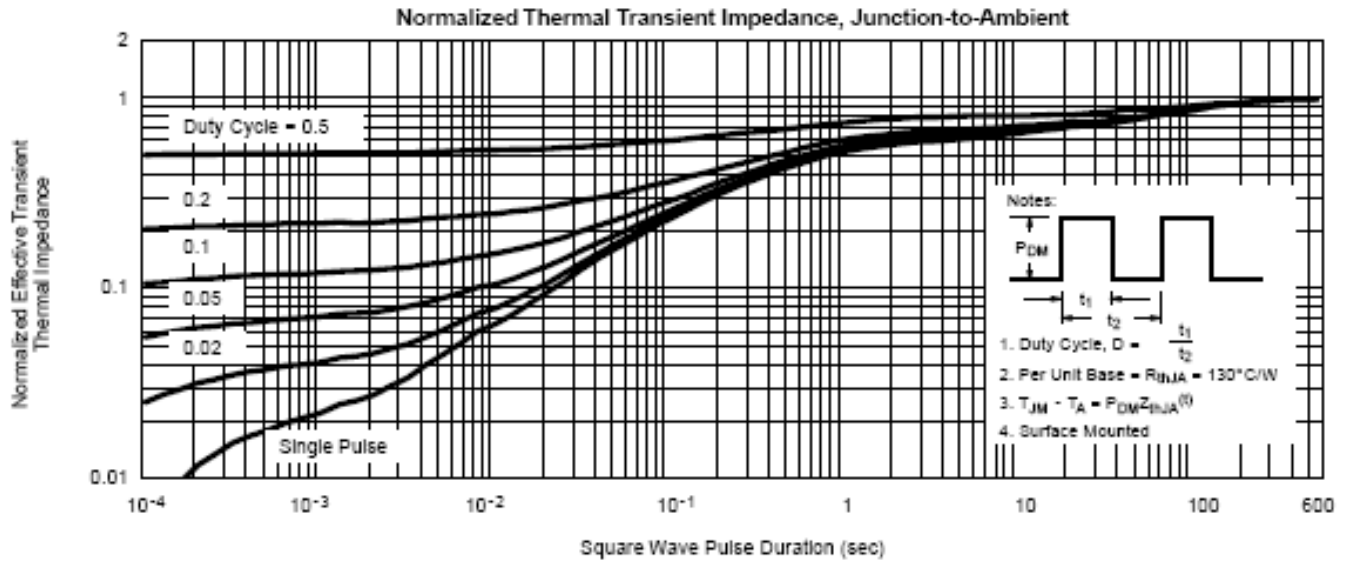
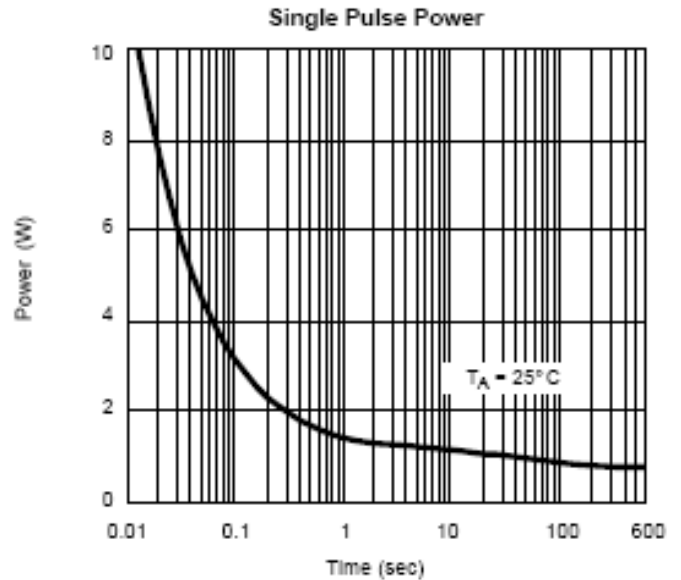
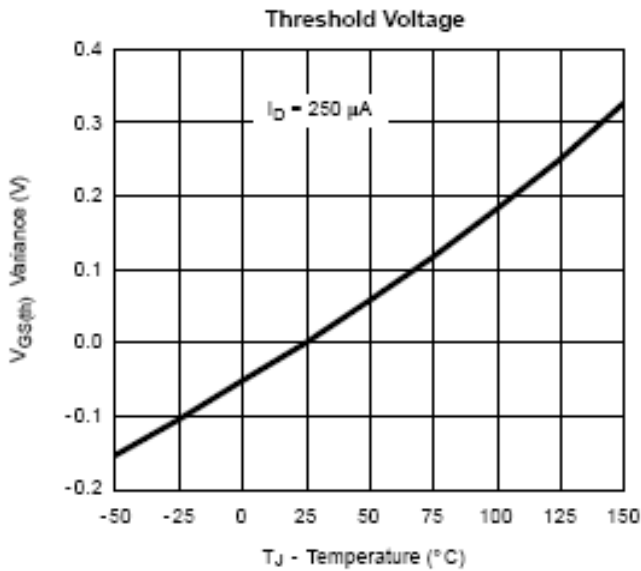
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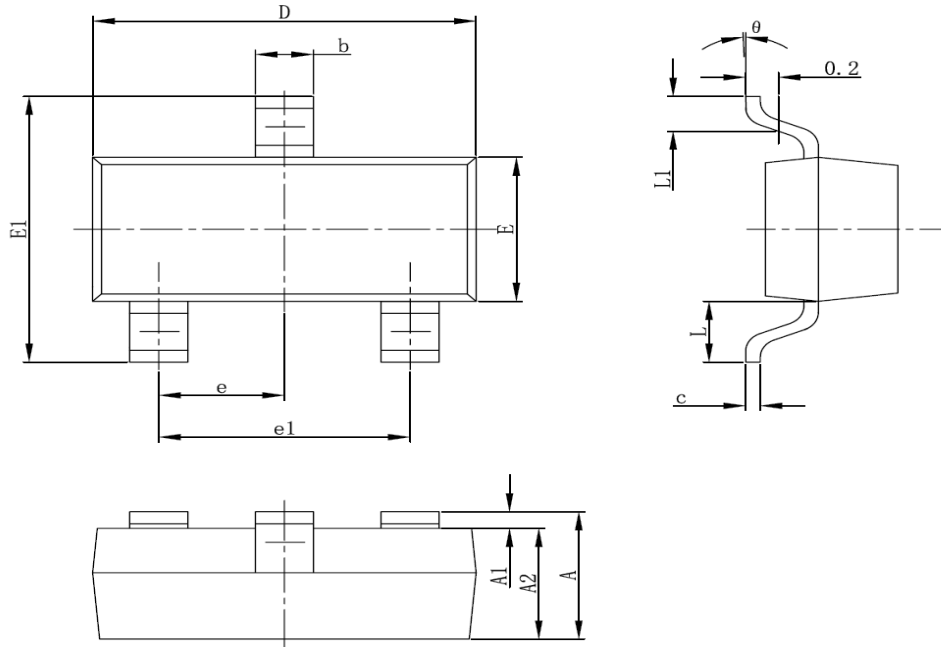




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SOT-23 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
theta	0°	8°	0°	8°



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