



# SPC6332

## N & P Pair Enhancement Mode MOSFET

### DESCRIPTION

The SPC6332 is the N- and P-Channel 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 and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching , low in-line power loss, and resistance to transients are needed.

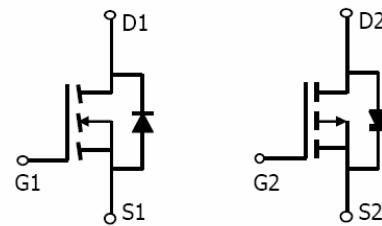
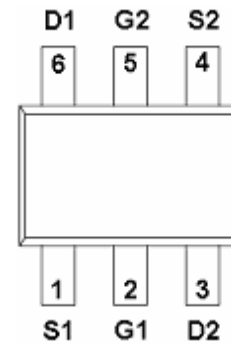
### FEATURES

- ◆ N-Channel
  - 20V/0.95A,  $R_{DS(ON)}=380m\Omega@V_{GS}=4.5V$
  - 20V/0.75A,  $R_{DS(ON)}=450m\Omega@V_{GS}=2.5V$
  - 20V/0.65A,  $R_{DS(ON)}=800m\Omega@V_{GS}=1.8V$
- ◆ P-Channel
  - 20V/1.0A,  $R_{DS(ON)}= 520m\Omega@V_{GS}=-4.5V$
  - 20V/0.8A,  $R_{DS(ON)}= 700m\Omega@V_{GS}=-2.5V$
  - 20V/0.7A,  $R_{DS(ON)}= 950m\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-363 (SC-70-6L) package design

### APPLICATIONS

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

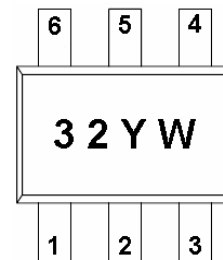
### PIN CONFIGURATION( SOT-363 / SC-70-6L)



n-channel

p-channel

### PART MARKING



Y : Year Code  
W : Week Code



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### PIN DESCRIPTION

Pin	Symbol	Description
1	G1	Gate 1
2	S2	Source 2
3	G2	Gate 2
4	D2	Drain 2
5	S1	Source 1
6	D1	Drain1

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPC6332S36RG	SOT-363	32YW

※ Week Code : A ~ Z ( 1 ~ 26 ) ; a ~ z ( 27 ~ 52 )

※ SPC6332S36RG : Tape Reel ; Pb – Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V <sub>DSS</sub>	20	-20	V	
Gate –Source Voltage	V <sub>GSS</sub>	±12	±12	V	
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	TA=25°C	-1.2	-1.0	A
		TA=80°C	-0.9	-0.7	
Pulsed Drain Current	I <sub>DM</sub>	4	-3	A	
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	0.6	-0.6	A	
Power Dissipation	P <sub>D</sub>	0.3		W	
		0.19			
Operating Junction Temperature	T <sub>J</sub>	-55/150		°C	
Storage Temperature Range	T <sub>STG</sub>	-55/150		°C	
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	T ≤ 10sec	360	360	°C/W
		Steady State	400	400	



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### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

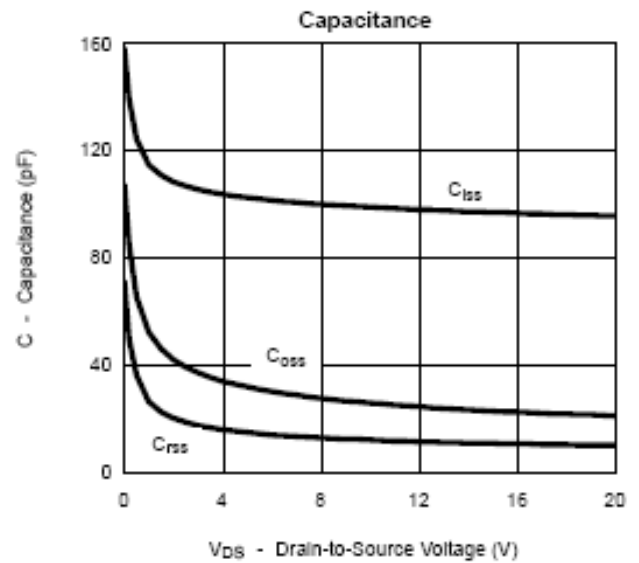
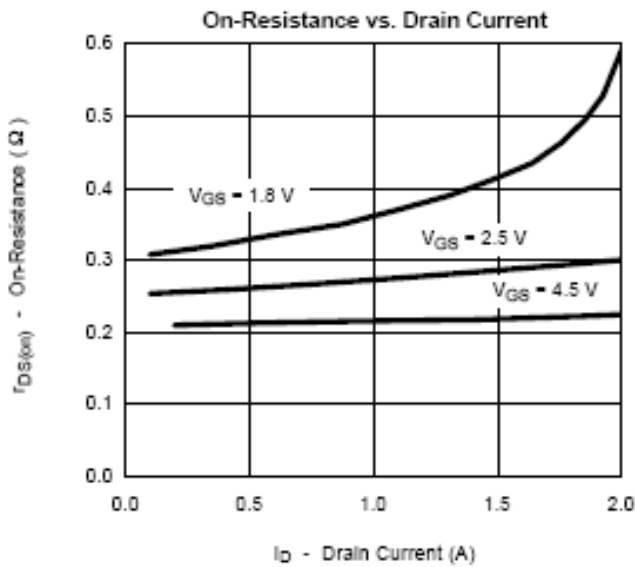
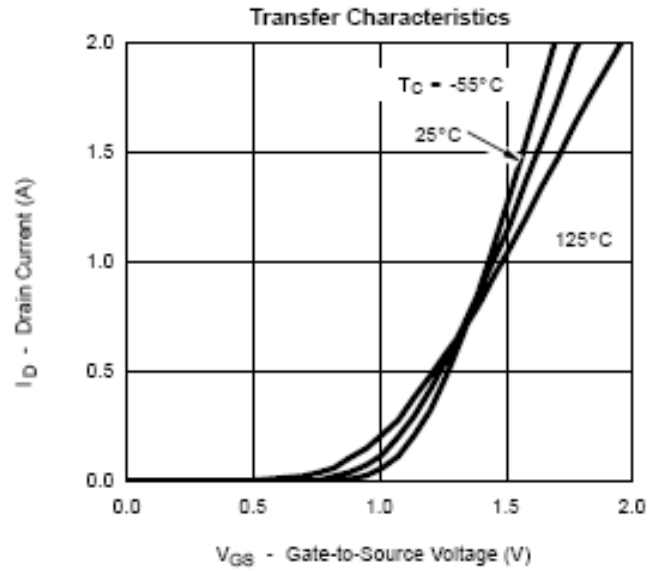
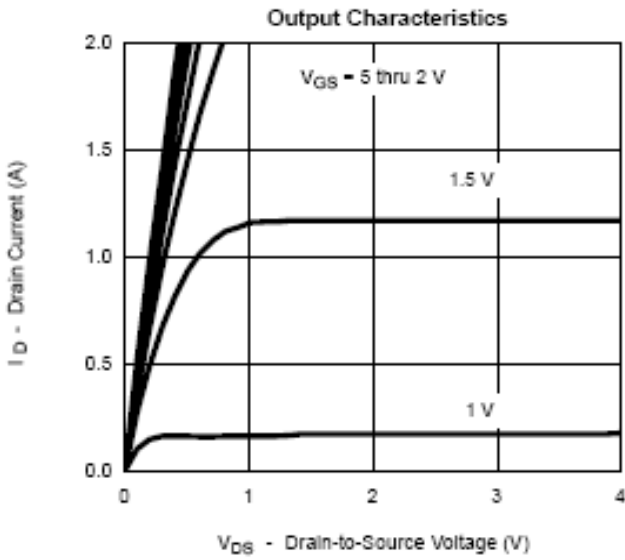
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
<b>Static</b>							
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> = 250uA	N-Ch	20		V	
		V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	P-Ch	-20			
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	N-Ch	0.35	1.0		
		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	P-Ch	-0.35	-1.0		
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V	N-Ch		100	nA	
		V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V	P-Ch		-100		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V	N-Ch		1	uA	
		V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V	P-Ch		1		
		V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V T <sub>J</sub> =55°C	N-Ch		5		
		V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V T <sub>J</sub> =55°C	P-Ch		5		
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> =5V	N-Ch	2		A	
		V <sub>DS</sub> ≤ -4.5V, V <sub>GS</sub> =-5V	P-Ch	-2			
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.95A	N-Ch		0.26	0.38	Ω
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.0A	P-Ch		0.42	0.52	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.75A	N-Ch		0.32	0.45	
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-0.8A	P-Ch		0.58	0.70	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.65A	N-Ch		0.42	0.80	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-0.5A	P-Ch		0.75	0.95	
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1.2A	N-Ch		2.6	S	
		V <sub>DS</sub> =-10V, I <sub>D</sub> =-1.0A	P-Ch		1.5		
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =0.5A, V <sub>GS</sub> =0V	N-Ch		0.8	1.2	V
		I <sub>S</sub> =-0.5A, V <sub>GS</sub> =0V	P-Ch		-0.8	-1.2	
<b>Dynamic</b>							
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> ≐1.2A P-Channel V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> ≐-1.0A	N-Ch		1.2	2.0	nC
Gate-Source Charge	Q <sub>gs</sub>		P-Ch		1.1	1.8	
			N-Ch		0.2		
Gate-Drain Charge	Q <sub>gd</sub>		P-Ch		0.3		
			N-Ch		0.3		
Turn-On Time	td(on)		N-Ch		15	25	
	tr	P-Ch		18	30		
Turn-Off Time		td(off)	N-Ch		20	30	
	P-Ch			25	40		
	N-Ch			25	40		
	P-Ch			20	30		
	tf	N-Ch		12	20		
		P-Ch		12	20		



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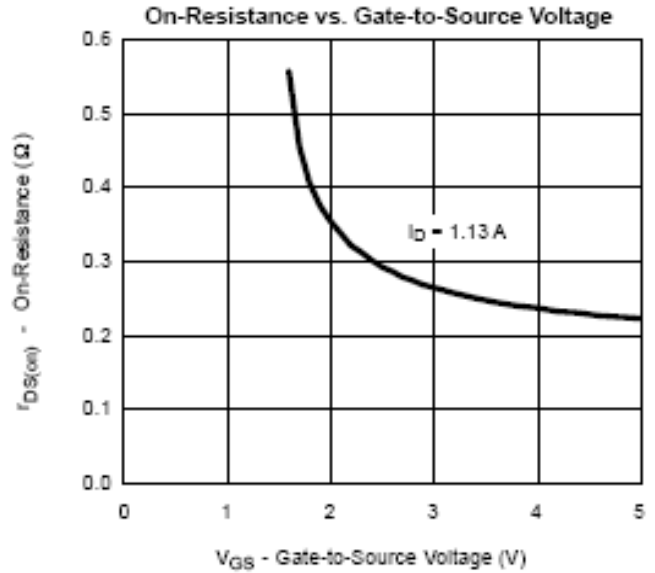
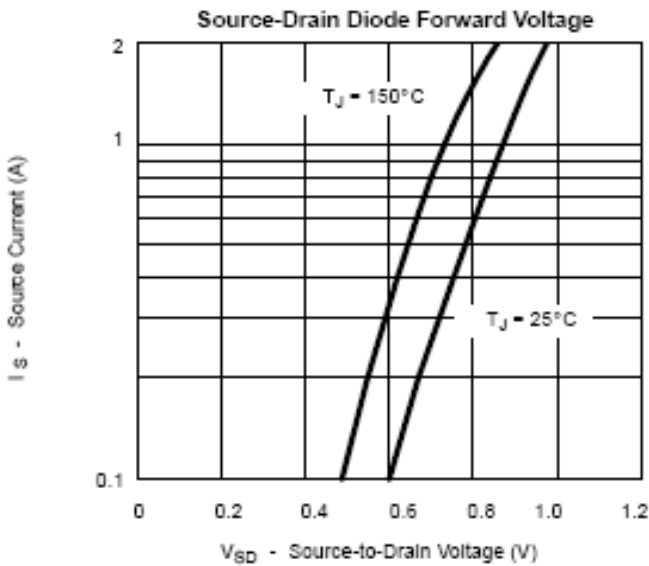
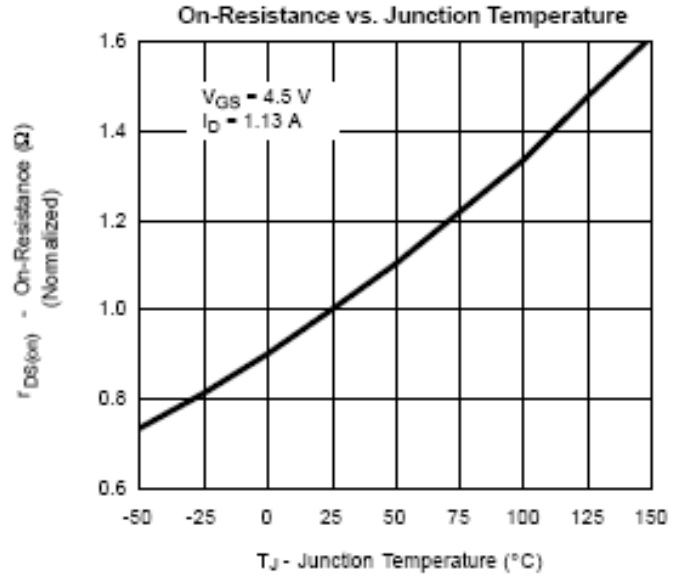
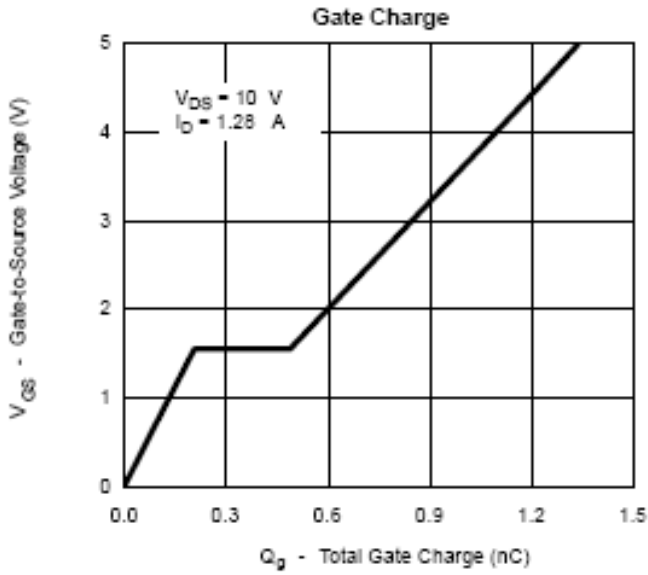
### TYPICAL CHARACTERISTICS ( N-Channel )





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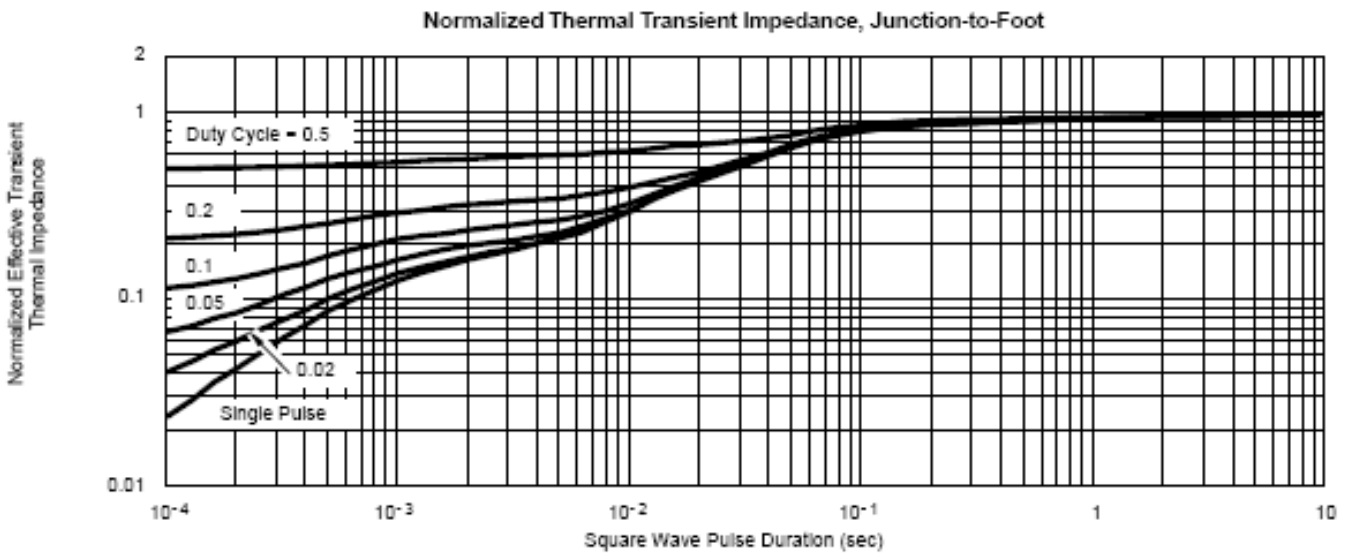
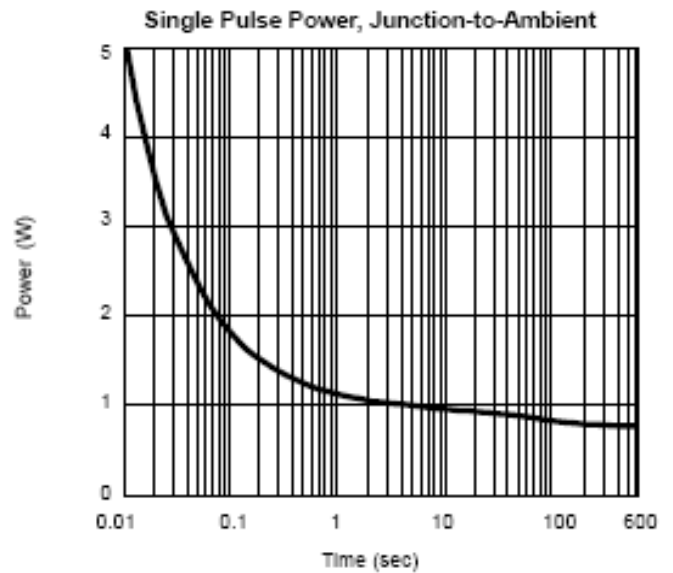
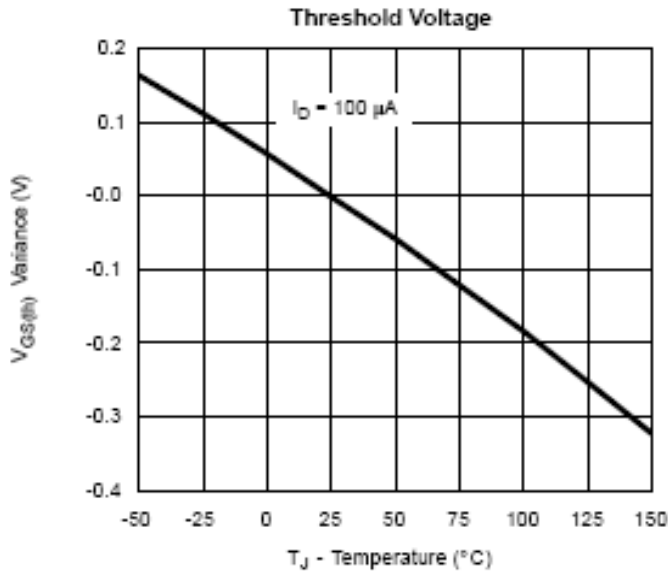
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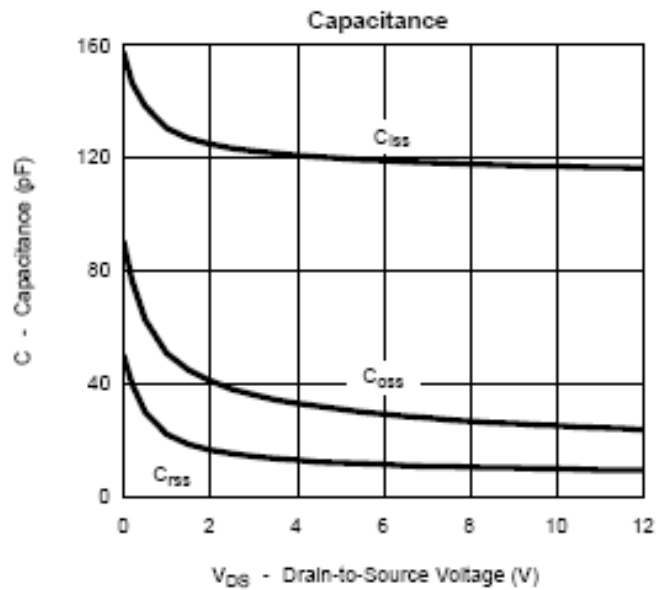
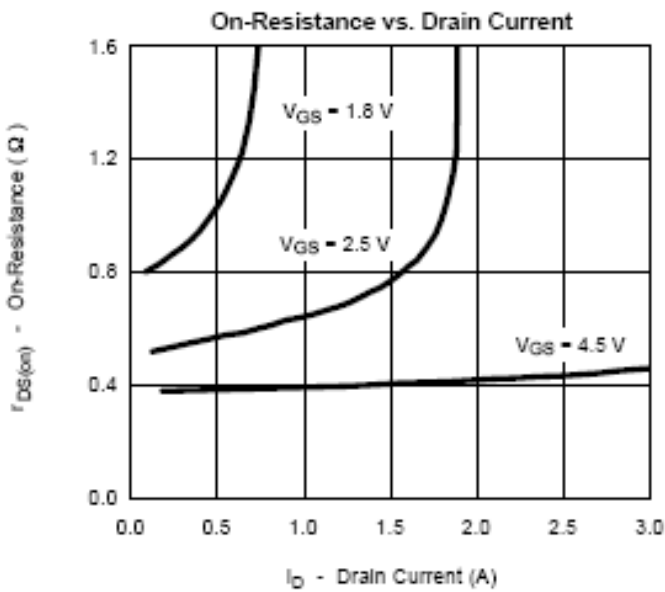
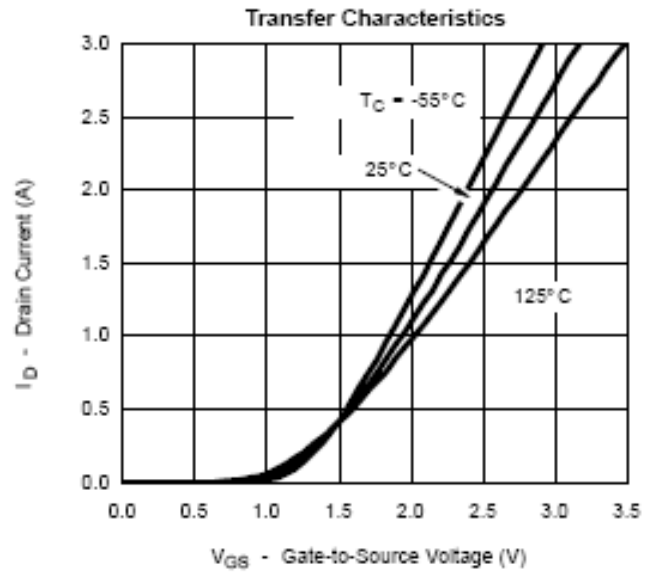
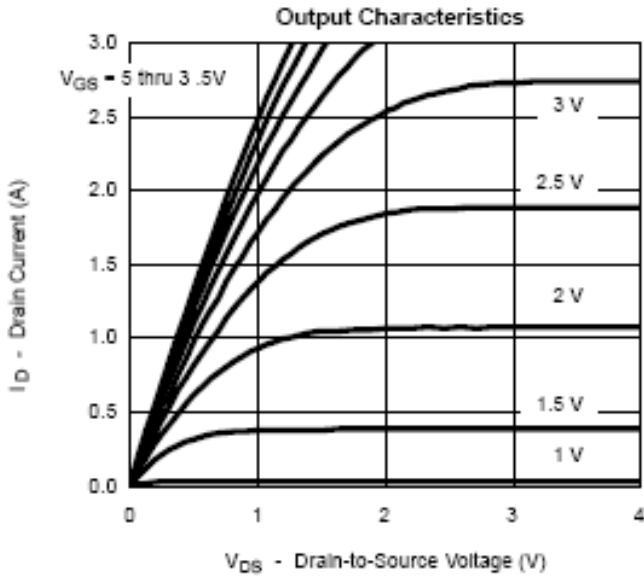
## TYPICAL CHARACTERISTICS ( N-Channel )





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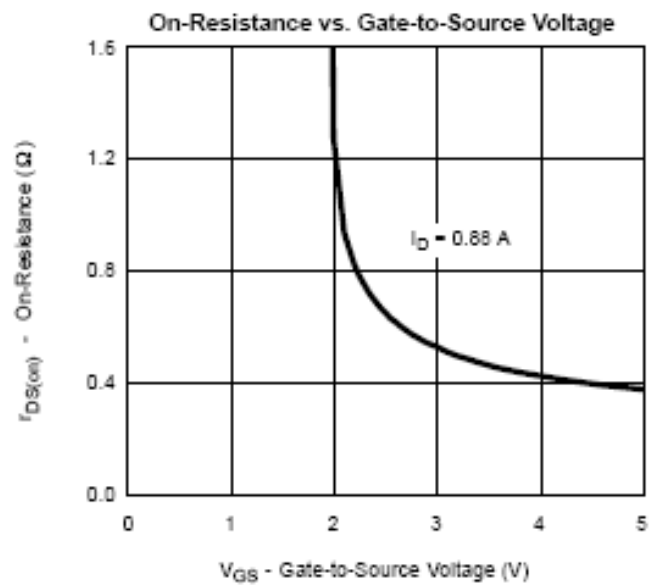
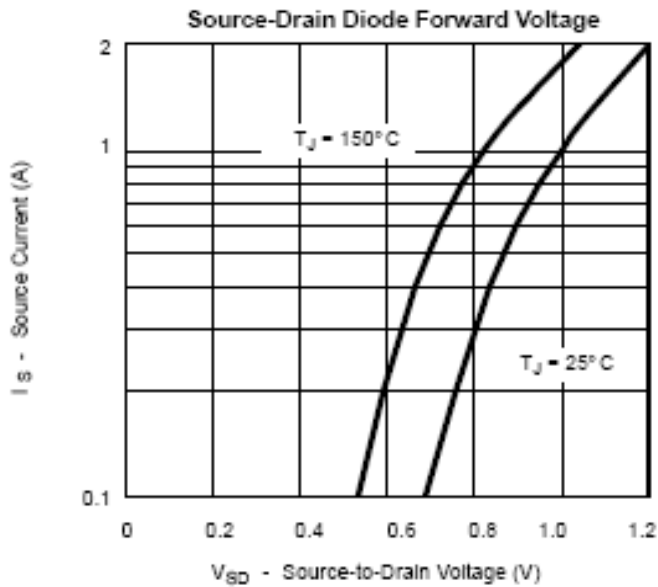
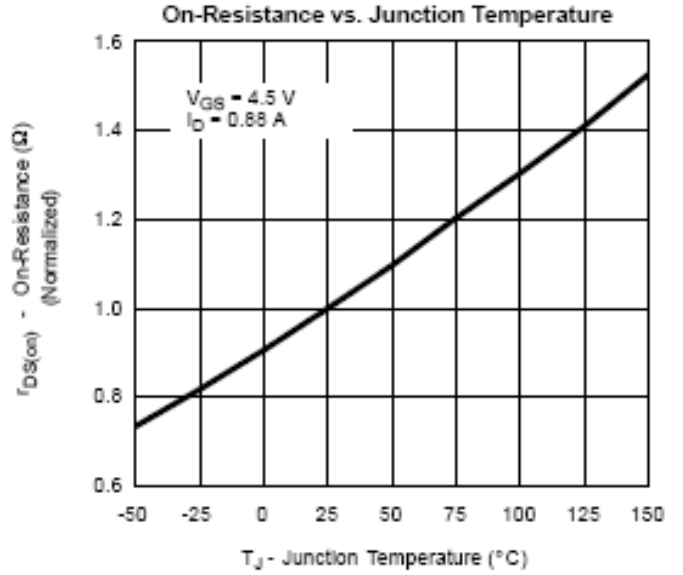
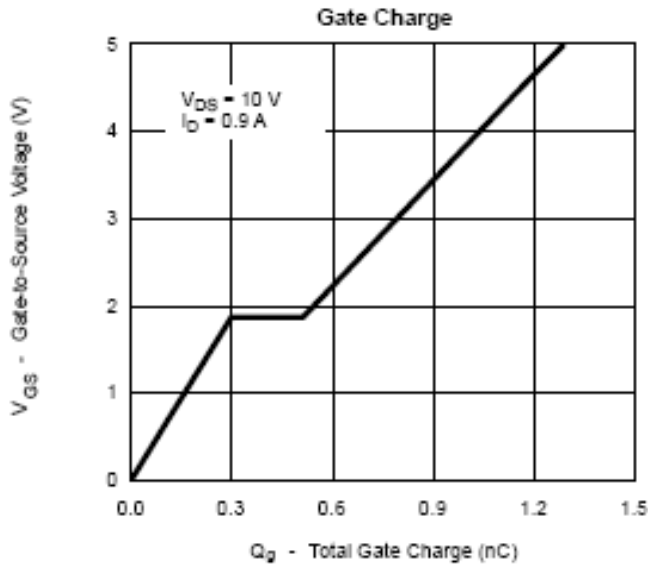
## TYPICAL CHARACTERISTICS ( P-Channel )





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## TYPICAL CHARACTERISTICS ( P-Channel )

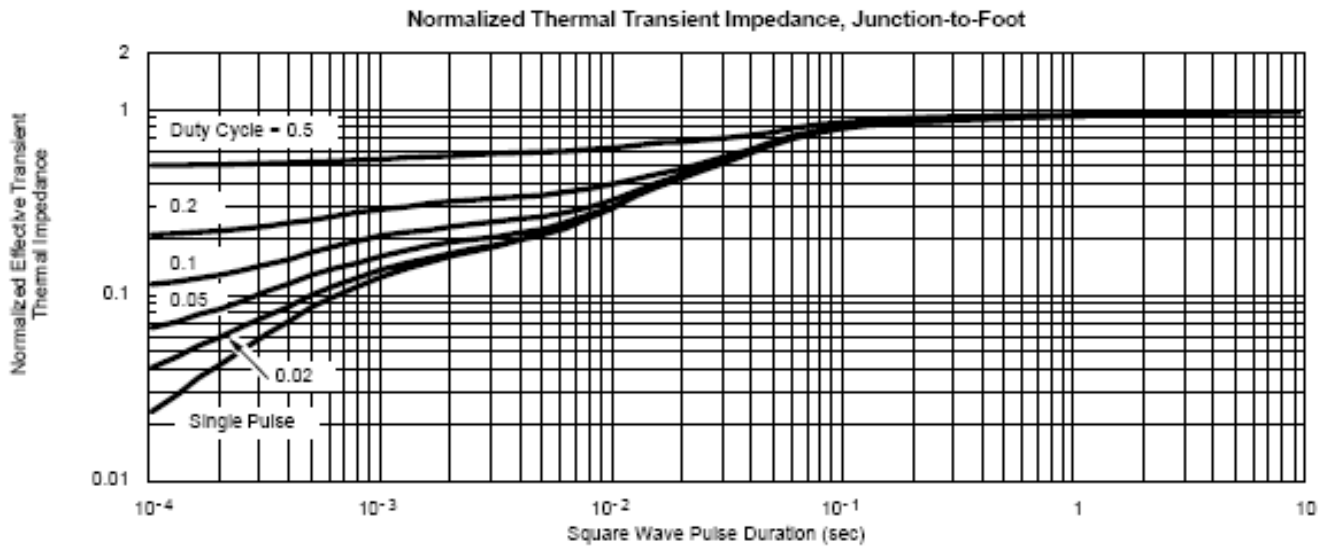
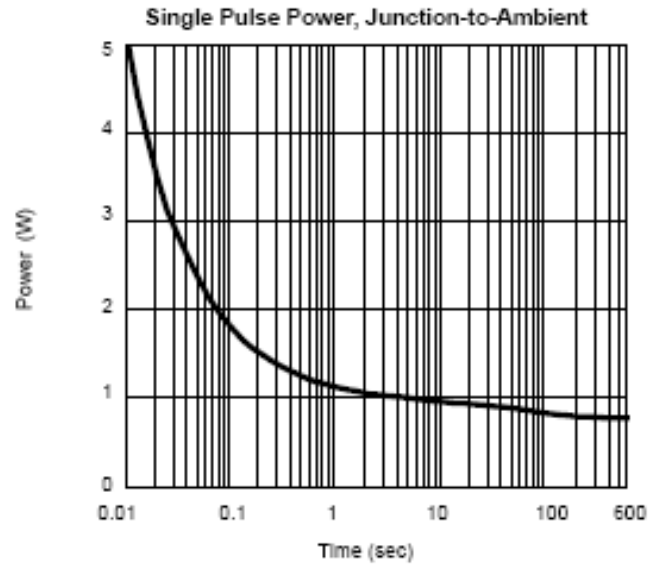
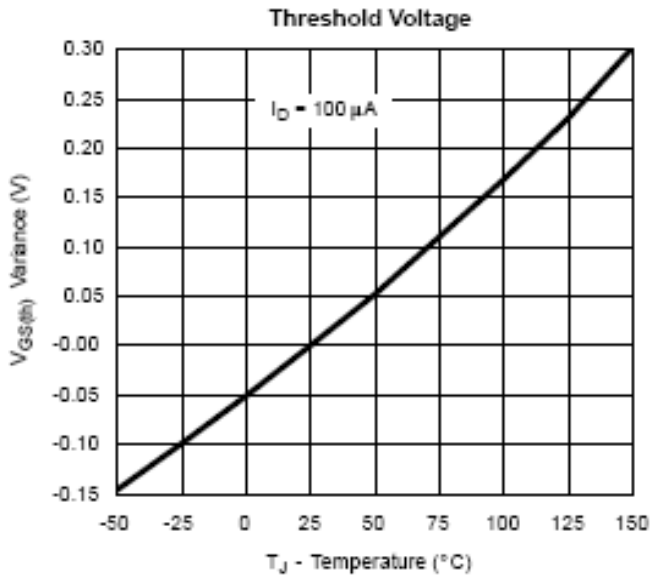






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## TYPICAL CHARACTERISTICS ( P-Channel )

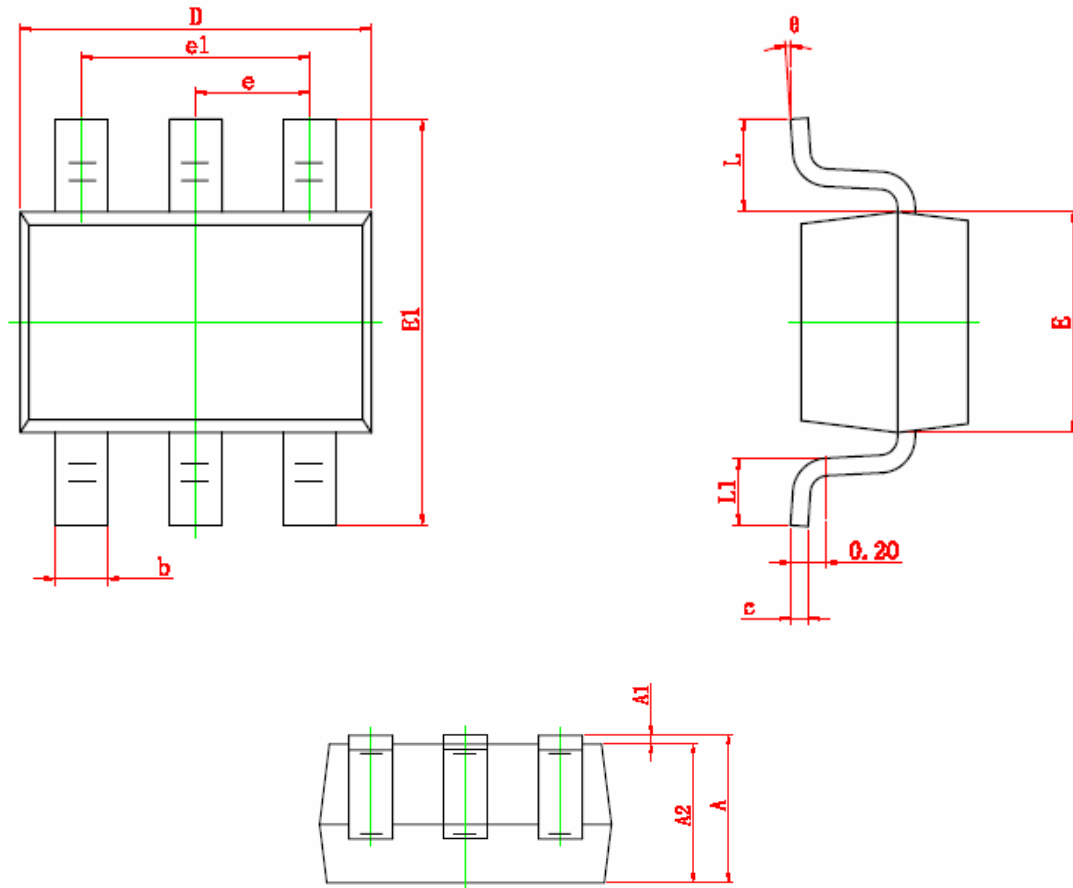




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### SOT-363 PACKAGE OUTLINE



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	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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