



SPC6333

N & P Pair Enhancement Mode MOSFET

DESCRIPTION

The SPC6333 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.

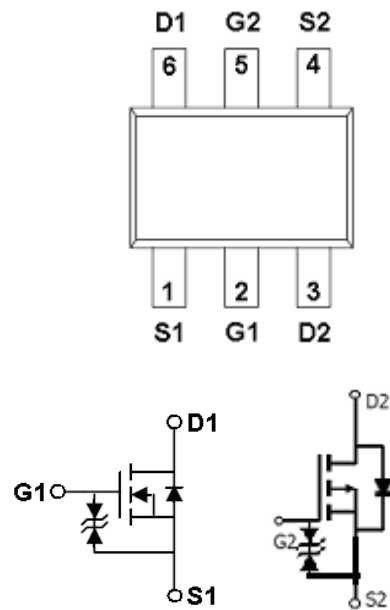
FEATURES

- ◆ 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, $R_{DS(ON)}=1500m\Omega@V_{GS}=-1.8V$
- ◆ 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

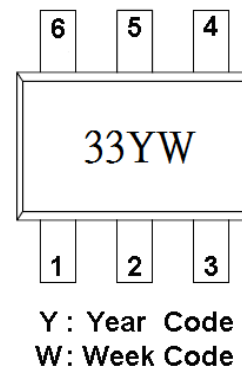
APPLICATIONS

- 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)



PART MARKING





SPC6333

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PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPC6333S36RGB	SOT-363	33YW

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

※ SPC6333S36RGB : Tape Reel ; Pb – Free ; Halogen -Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V _{DSS}	20	-20	V	
Gate –Source Voltage	V _{GSS}	±12	±12	V	
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C	1.2	-1.0	A
		T _A =80°C	0.9	-0.7	
Pulsed Drain Current	I _{DM}	4	-3	A	
Continuous Source Current(Diode Conduction)	I _S	0.6	-0.6	A	
Power Dissipation	P _D	T _A =25°C	0.3		W
		T _A =70°C	0.19		
Operating Junction Temperature	T _J	-55/150		°C	
Storage Temperature Range	T _{STG}	-55/150		°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	T ≤ 10sec	360	360	°C/W
		Steady State	400	400	



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ELECTRICAL CHARACTERISTICS

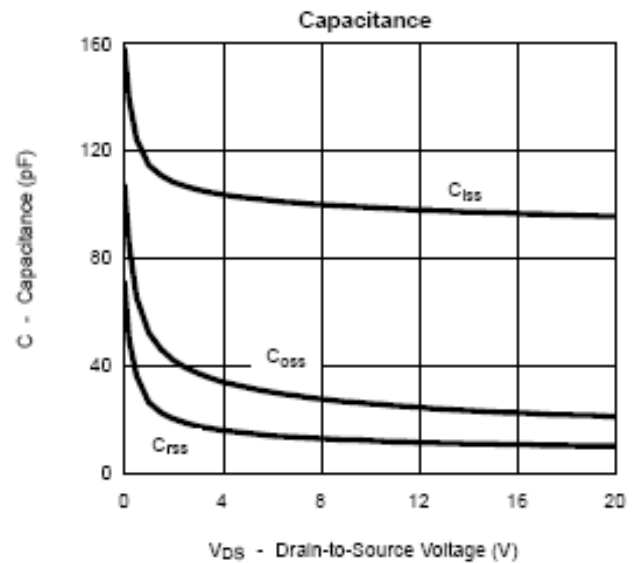
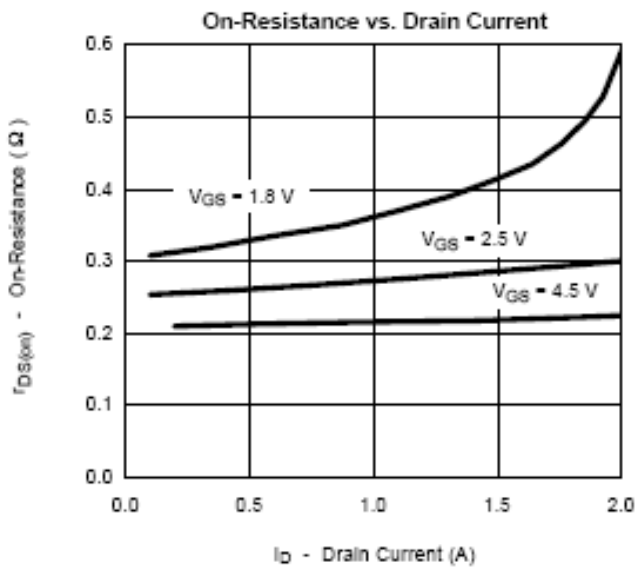
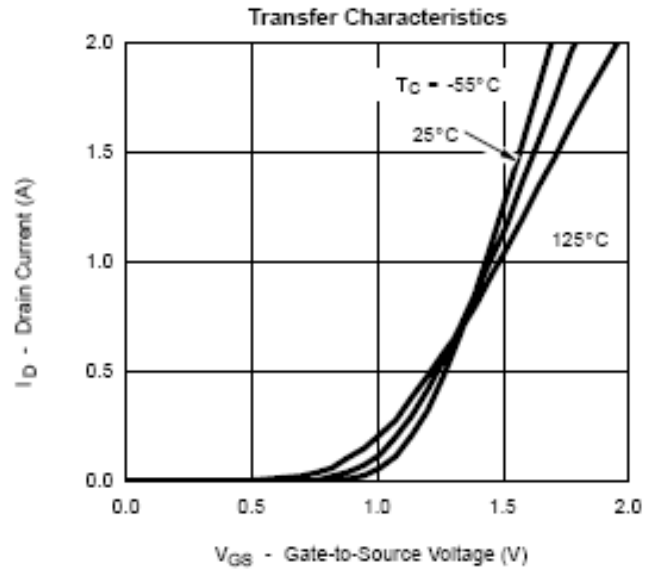
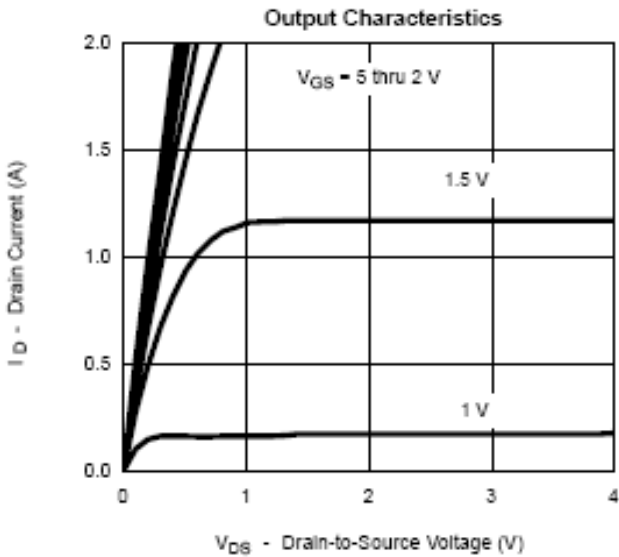
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = 250uA	N-Ch	20		V	
		V _{GS} =0V, I _D =-250uA	P-Ch	-20			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	N-Ch	0.35	1.0	V	
		V _{DS} =V _{GS} , I _D =-250uA	P-Ch	-0.35	-1.0		
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	N-Ch		30	uA	
		V _{DS} =0V, V _{GS} =±12V	P-Ch		-30		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} =0V	N-Ch		1	uA	
		V _{DS} =-20V, V _{GS} =0V	P-Ch		-1		
		V _{DS} = 20V, V _{GS} =0V T _J =55°C	N-Ch		5		
		V _{DS} =-20V, V _{GS} =0V T _J =55°C	P-Ch		-5		
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 4.5V, V _{GS} =5V	N-Ch	2		A	
		V _{DS} ≤ -4.5V, V _{GS} =-5V	P-Ch	-2			
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.95A	N-Ch		0.26	0.38	Ω
		V _{GS} =-4.5V, I _D =-1.0A	P-Ch		0.42	0.52	
		V _{GS} =2.5V, I _D =0.75A	N-Ch		0.32	0.45	
		V _{GS} =-2.5V, I _D =-0.8A	P-Ch		0.58	0.70	
		V _{GS} =1.8V, I _D =0.65A	N-Ch		0.42	0.80	
		V _{GS} =-1.8V, I _D =-0.5A	P-Ch		0.95	1.5	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =1.2A	N-Ch		2.6	S	
		V _{DS} =-10V, I _D =-1.0A	P-Ch		1.5		
Diode Forward Voltage	V _{SD}	I _S =0.5A, V _{GS} =0V	N-Ch		0.8	1.2	V
		I _S =-0.5A, V _{GS} =0V	P-Ch		-0.8	-1.2	
Dynamic							
Total Gate Charge	Q _g	N-Channel V _{DS} =10V, V _{GS} =4.5V, I _D =1.2A P-Channel V _{DS} =-10V, V _{GS} =-4.5V, I _D =-1.0A	N-Ch		1.2	2.0	nC
Gate-Source Charge	Q _{gs}		P-Ch		1.1	1.8	
			N-Ch		0.2		
Gate-Drain Charge	Q _{gd}		P-Ch		0.3		
			N-Ch		0.3		
Turn-On Time	t _{d(on)}		N-Ch		15	25	
		P-Ch		18	30		
	t _r	N-Ch	V _{DD} =10V, R _L =20Ω, I _D =0.5A V _{GEN} =4.5V, R _G =6Ω		20	30	
		P-Ch		25	40		
Turn-Off Time	t _{d(off)}	N-Ch	P-Channel V _{DD} =-10V, R _L =20Ω, I _D =-0.5A V _{GEN} =-4.5V, R _G =6Ω		25	40	
		P-Ch		20	30		
	t _f	N-Ch			12	20	
		P-Ch			12	20	



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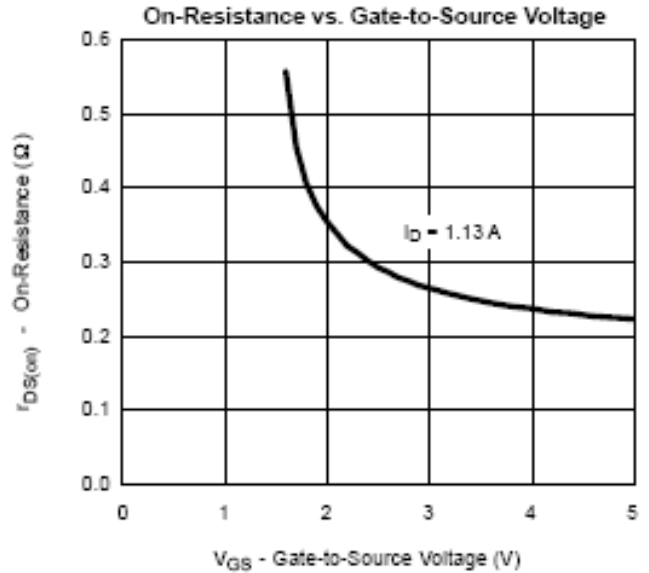
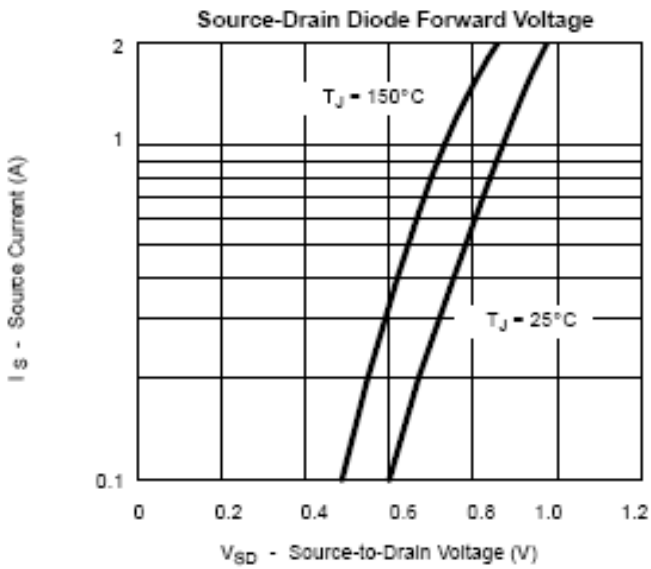
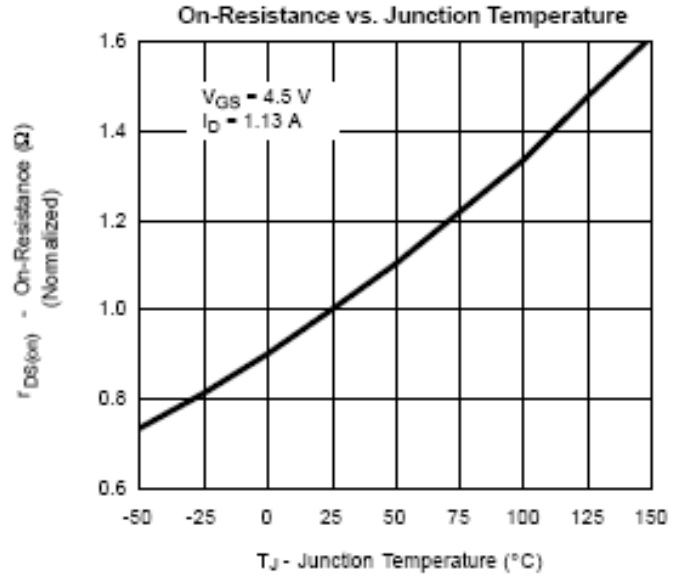
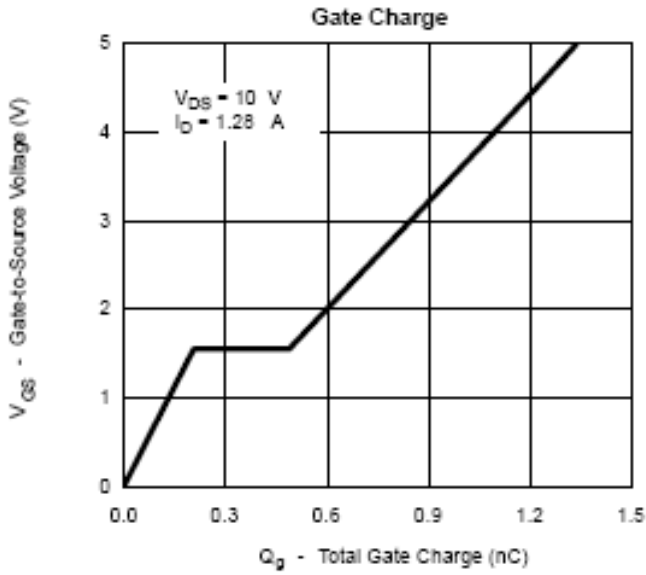
TYPICAL CHARACTERISTICS (N-Channel)





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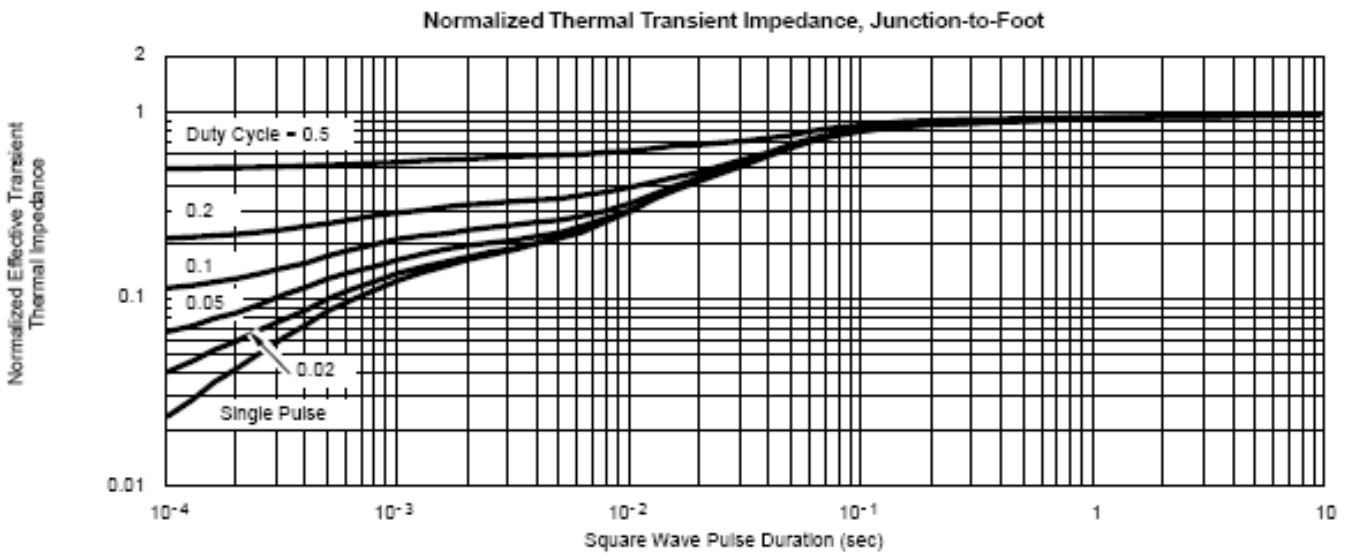
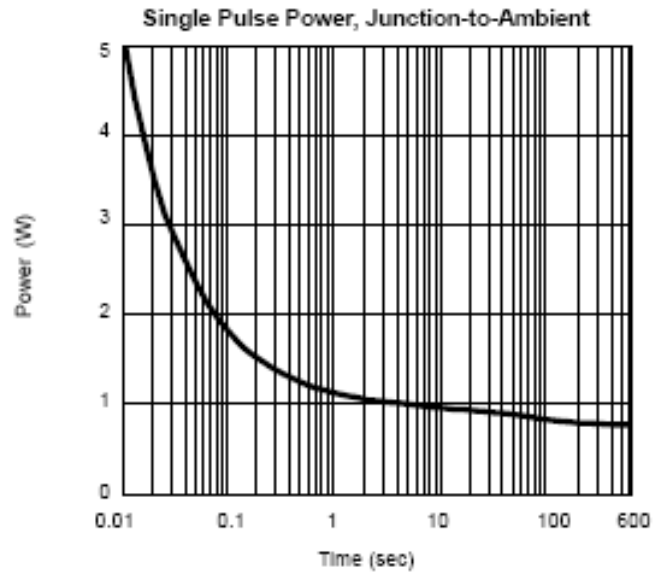
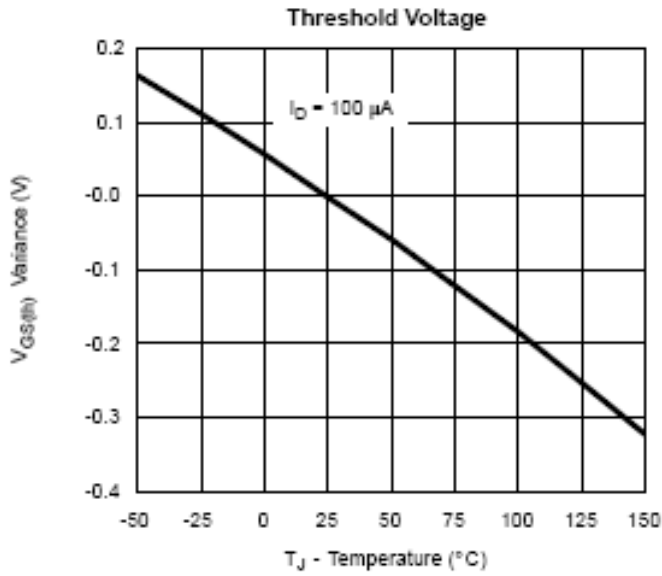
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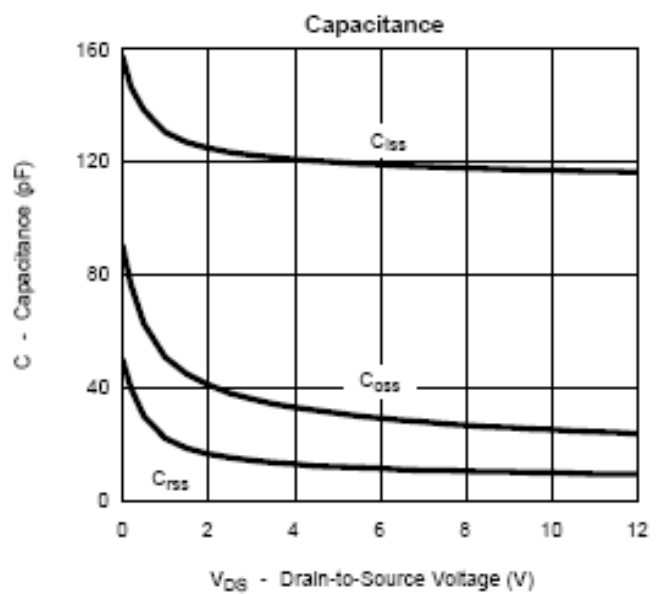
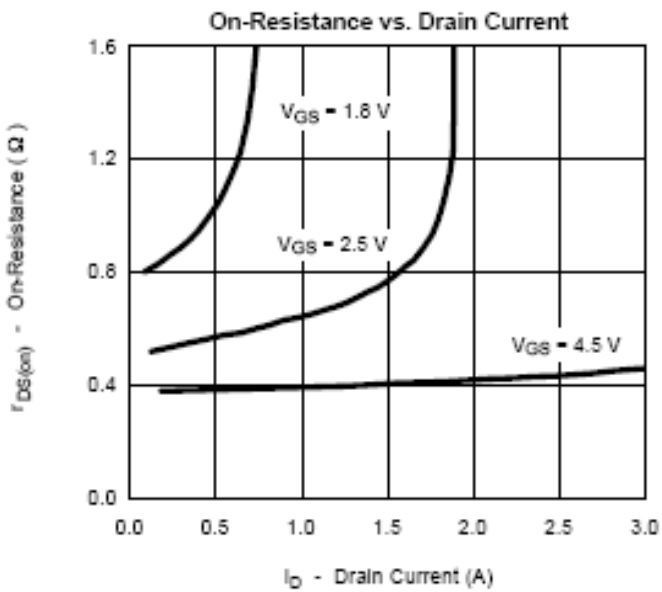
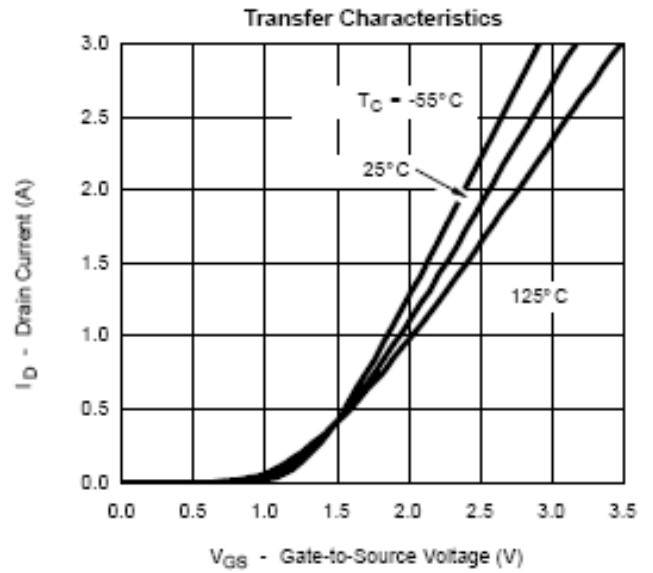
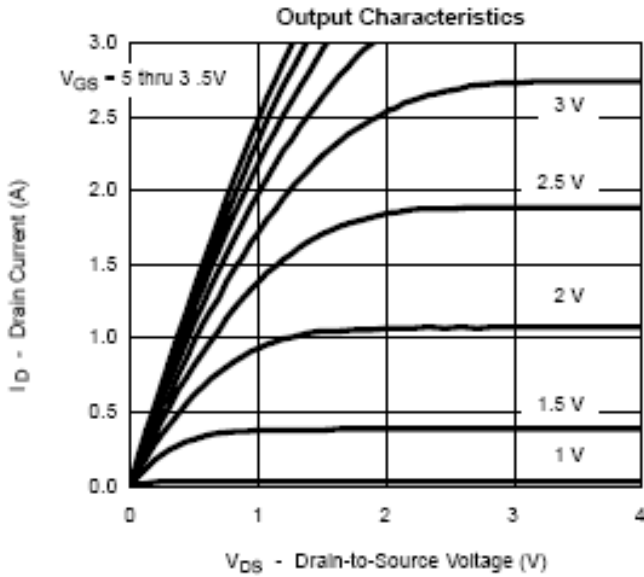




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TYPICAL CHARACTERISTICS (P-Channel)

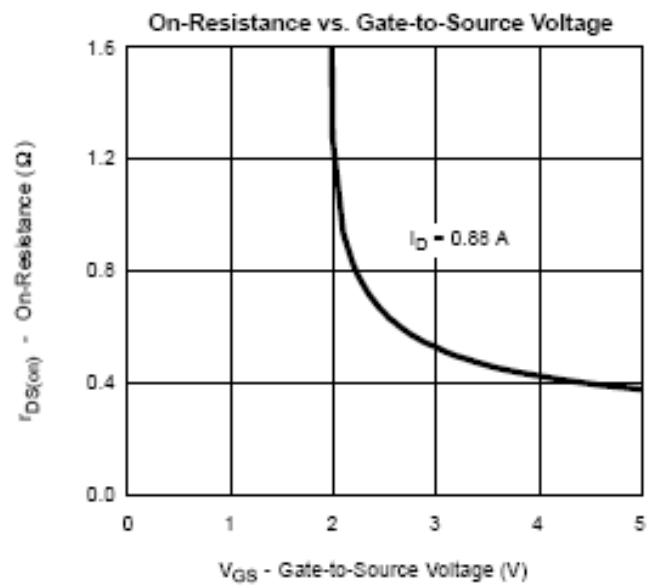
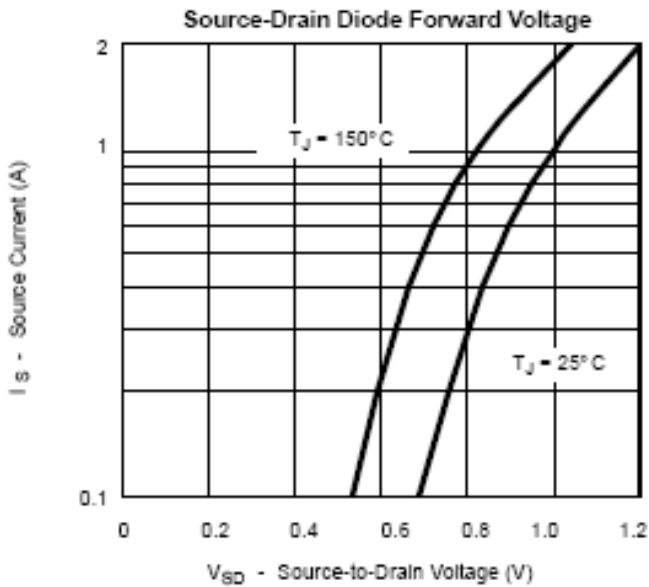
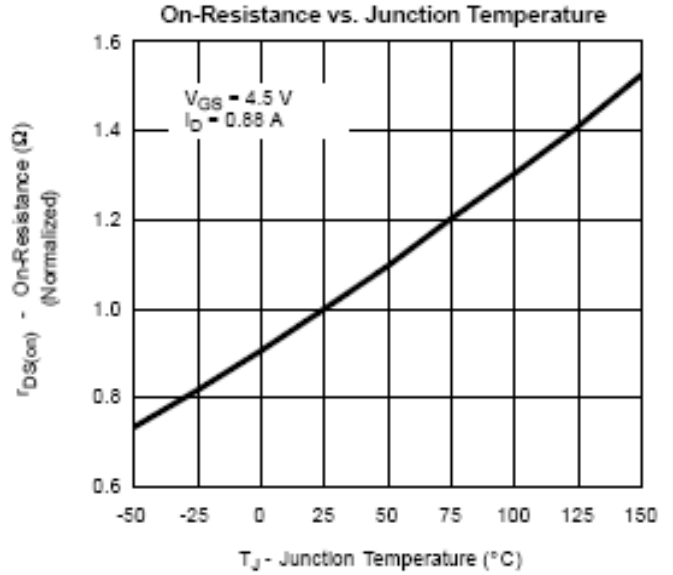
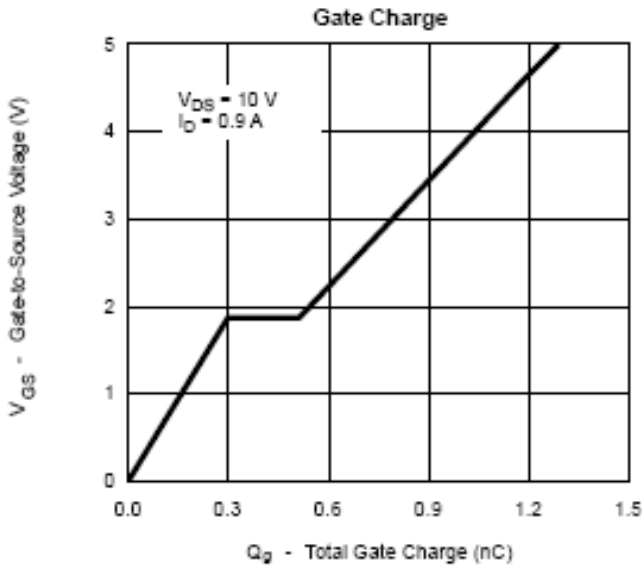




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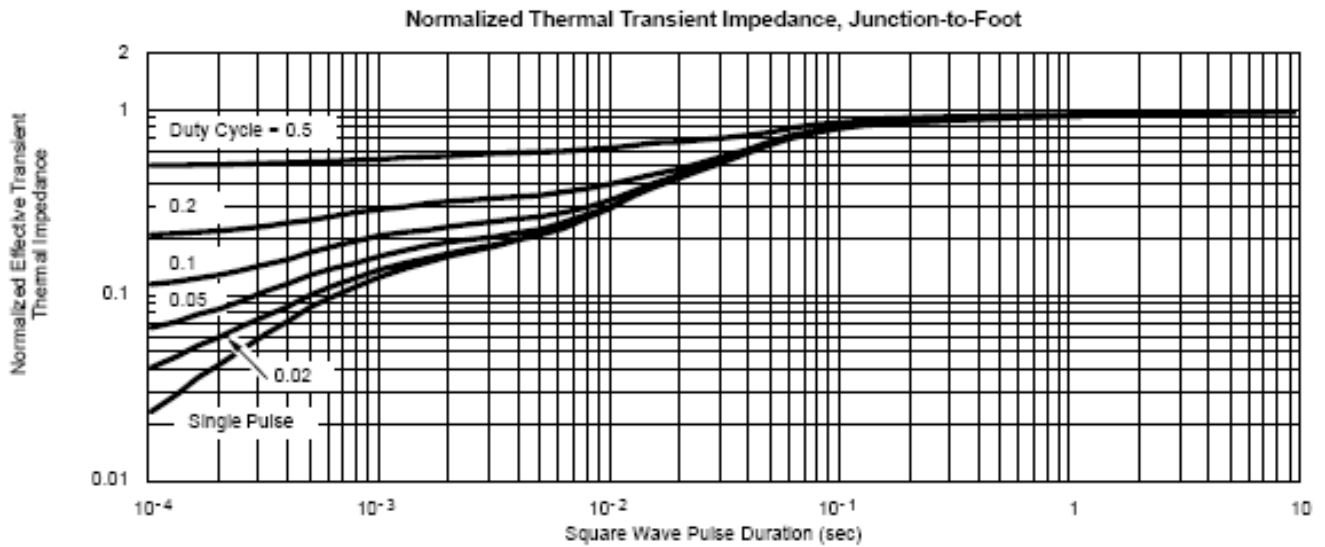
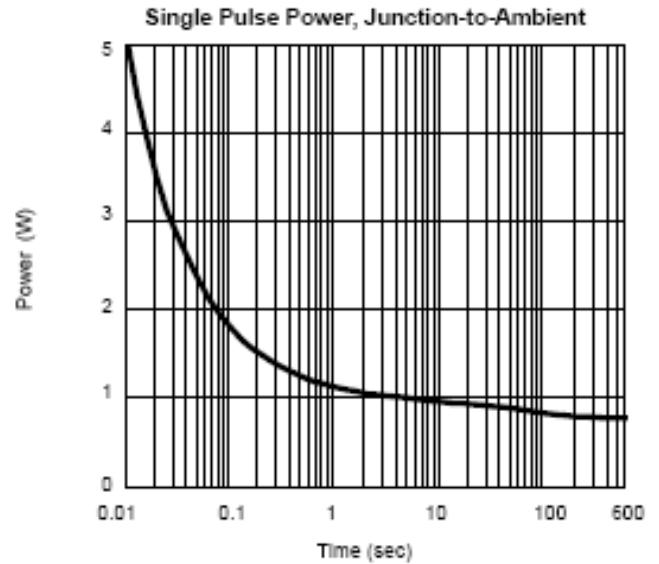
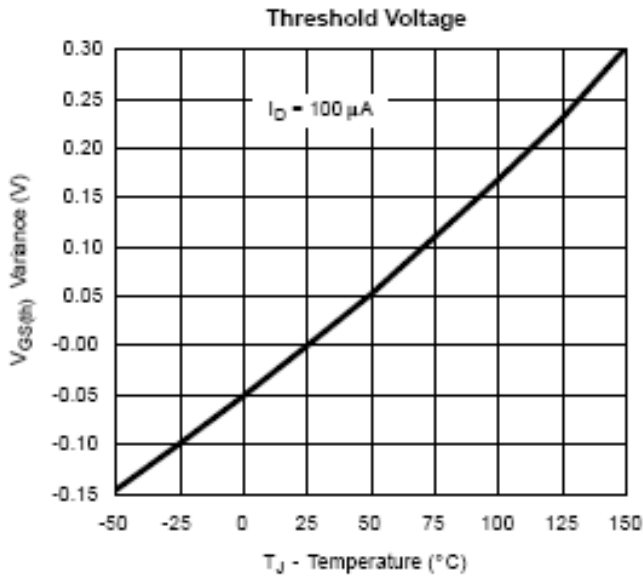
TYPICAL CHARACTERISTICS (P-Channel)





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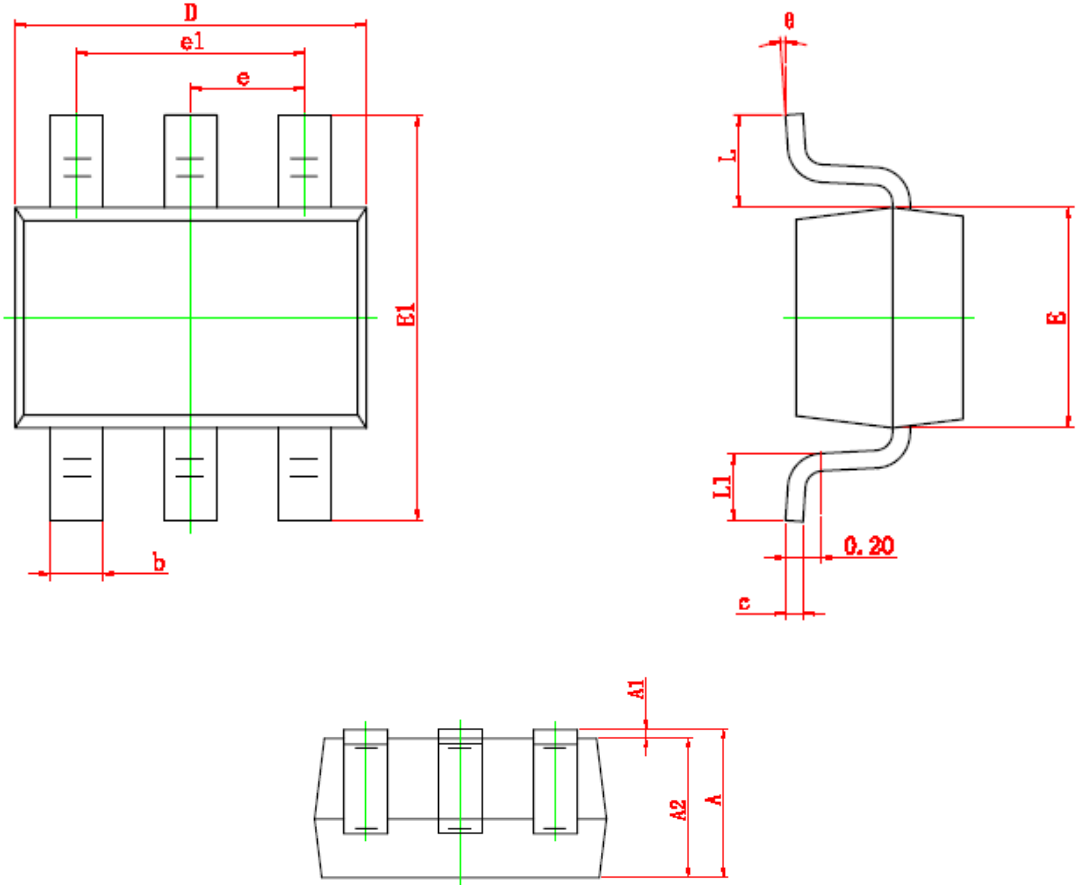




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SOT-363 PACKAGE OUTLINE



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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