Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	190mΩ@-10V	-3.5A
	210mΩ@-4.5V	

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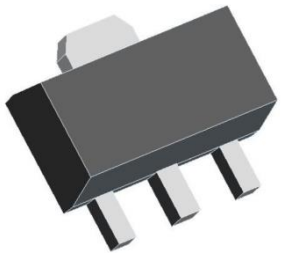
Feature

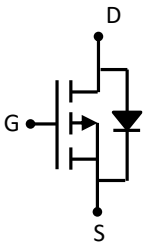
- High density cell design for ultra low $R_{DS(on)}$
- Fast Switching Speed
- Low Gate Charge

Package

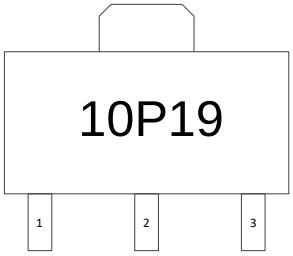


SOT-89(1:G 2:D 3:S)

Circuit diagram



Marking



10P19 =Device Code

Order Information

Device	Package	Unite/Tape
SP010N190T8	SOT-89	1000

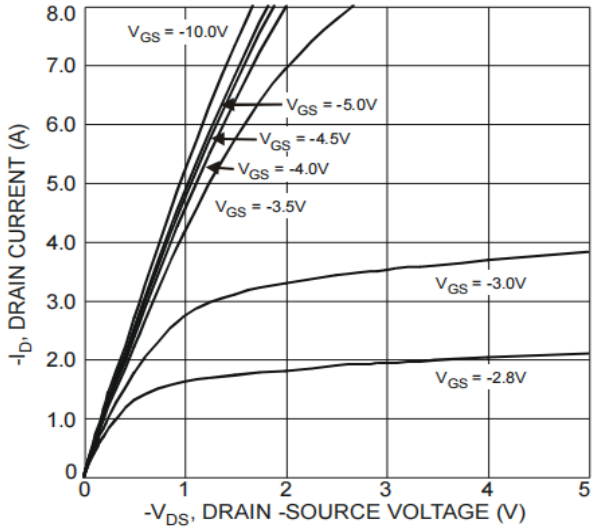
Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_A = 25℃)	I_D	-3.5	A
Pulsed Drain Current	I_{DM}	-14	A
Total Power Dissipation (T_A = 25℃)	P_D	2.5	W
Thermal Resistance Junction-ambient	$R_{\theta JA}$	50	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

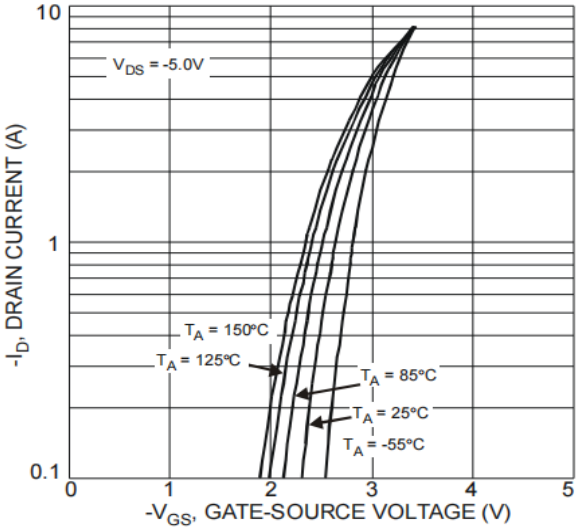
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=-250uA	-100			V
Drain-Source Leakage Current	I_{DSS}	VDS=-100V , VGS=0V			1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =-250uA	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=-10V , ID=-0.5A		190	250	mΩ
		VGS=-4.5V , ID=-0.4A		210	300	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=-25V , VGS=0V , f=1MHz		1239		pF
Output Capacitance	C_{oss}			42		
Reverse Transfer Capacitance	C_{rss}			38		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=-50V , VGS=-10V , RG=10Ω, ID=-3A		9.1		ns
Rise Time	T_r			14.9		
Turn-Off Delay Time	$T_{d(off)}$			57.4		
Fall Time	T_f			34.4		
Total Gate Charge	Q_g	VDS=-60V , VGS=-10V , ID=-3A		17.5		nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			3.2		
Source-Drain Diode characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=-1A			-1.2	V

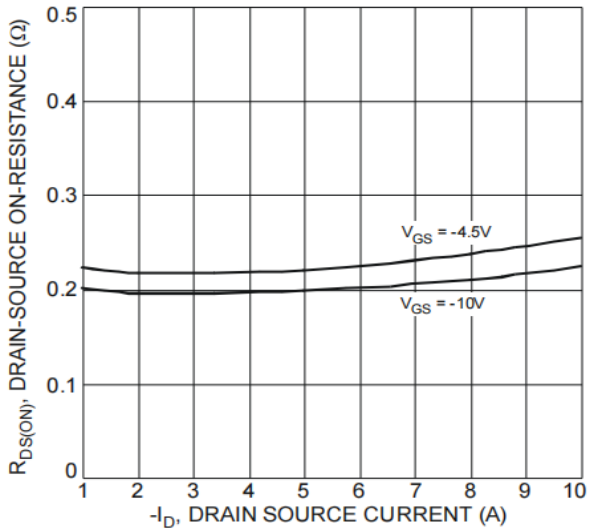
Typical Characteristics



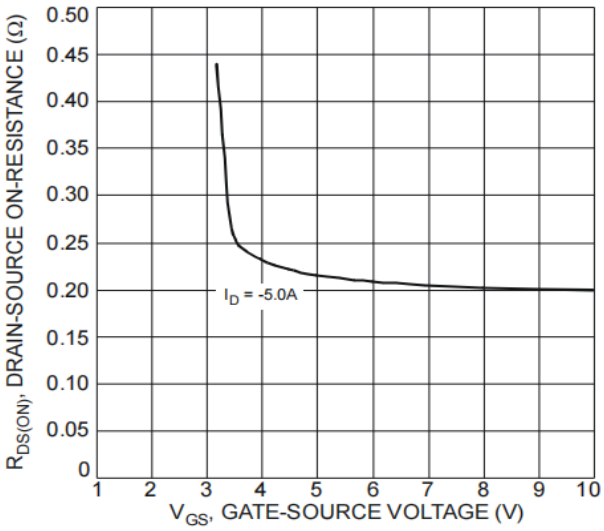
Typical Output Characteristics



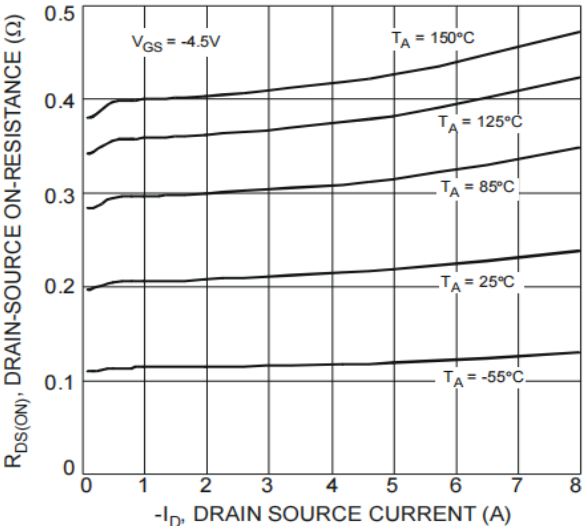
Transfer Characteristics



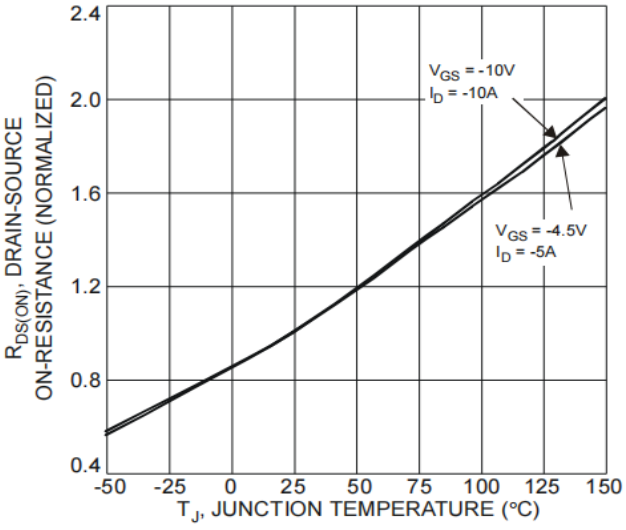
On-Resistance vs. Drain Current and Gate Voltage



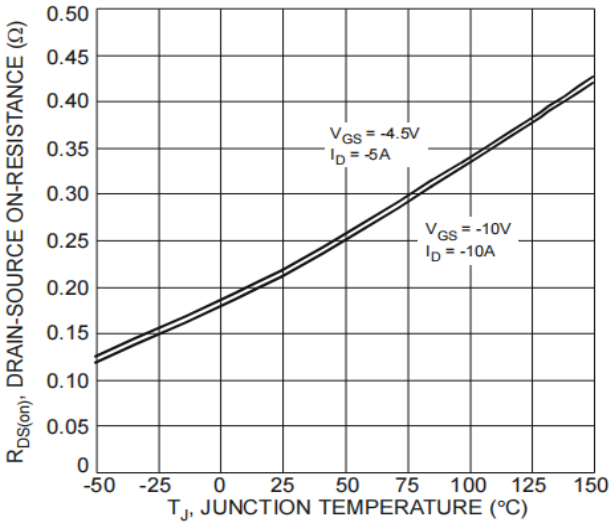
Drain-Source On-Resistance vs.Gate-Source Voltage



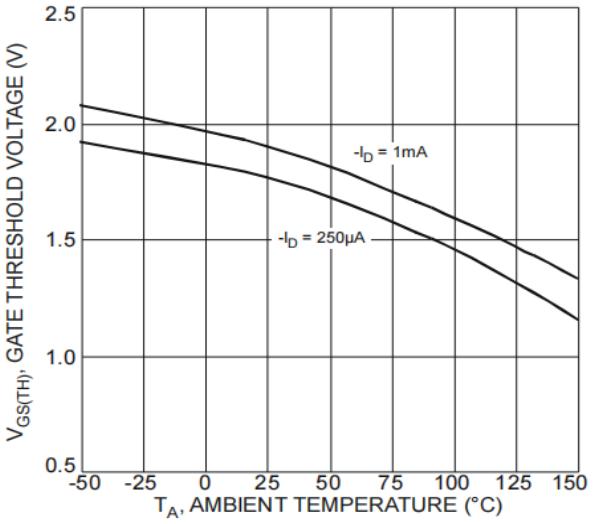
On-Resistance vs. Drain Current and Temperature



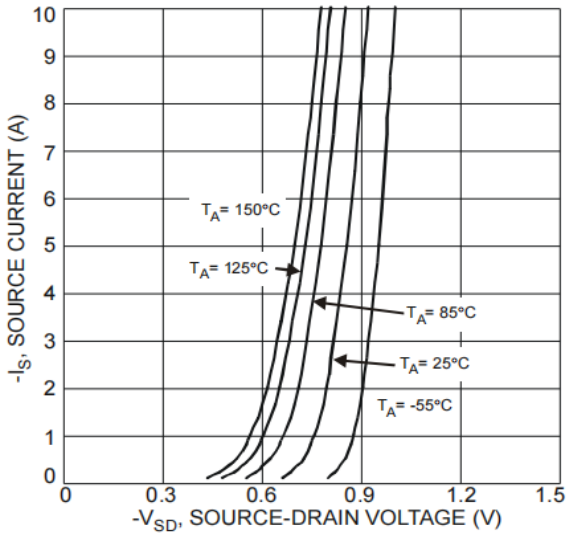
On-Resistance Variation with Temperature



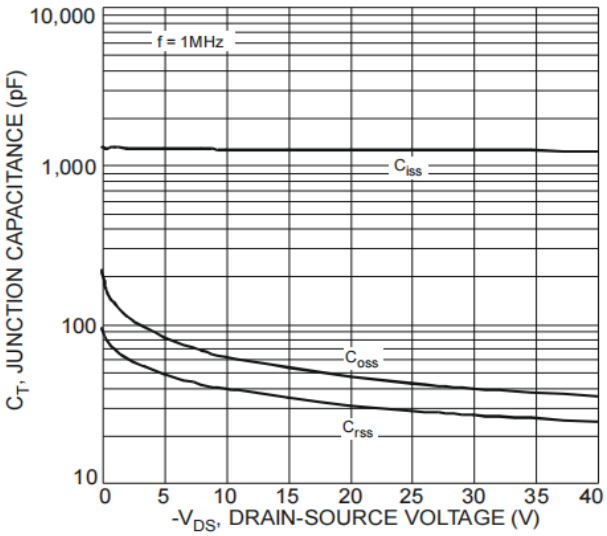
On-Resistance Variation with Temperature



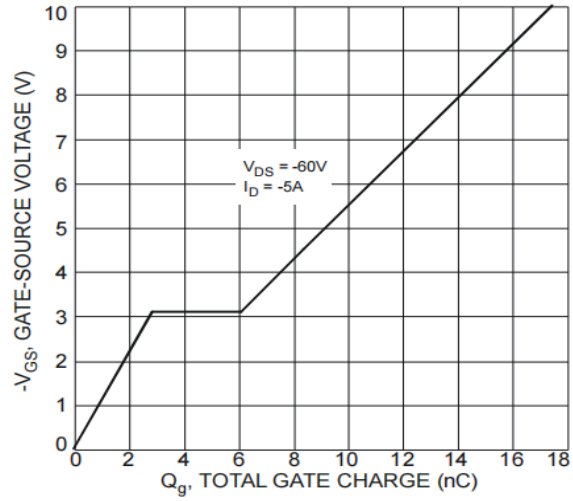
Gate Threshold Variation vs. Ambient Temperature



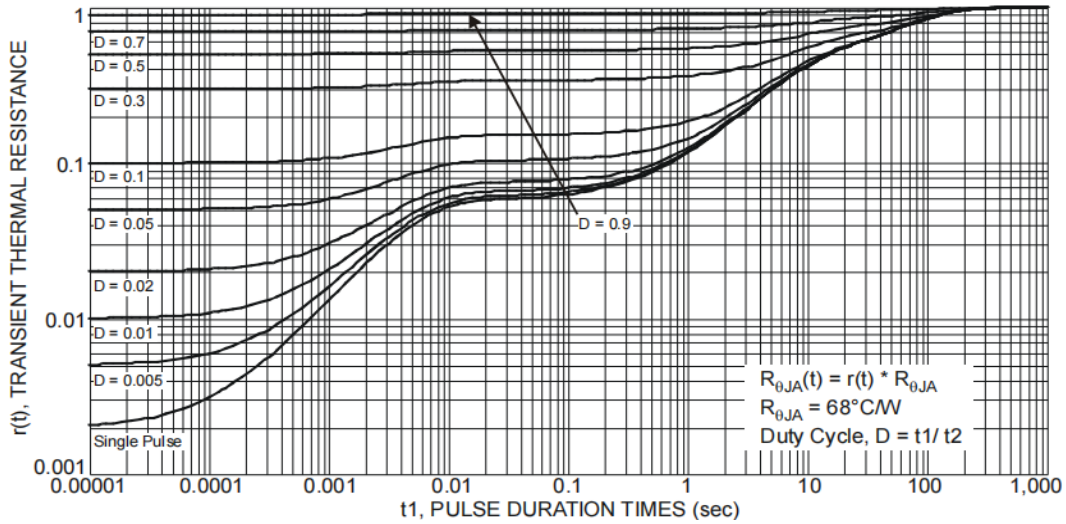
Diode Forward Voltage vs. Current



Typical Junction Capacitance

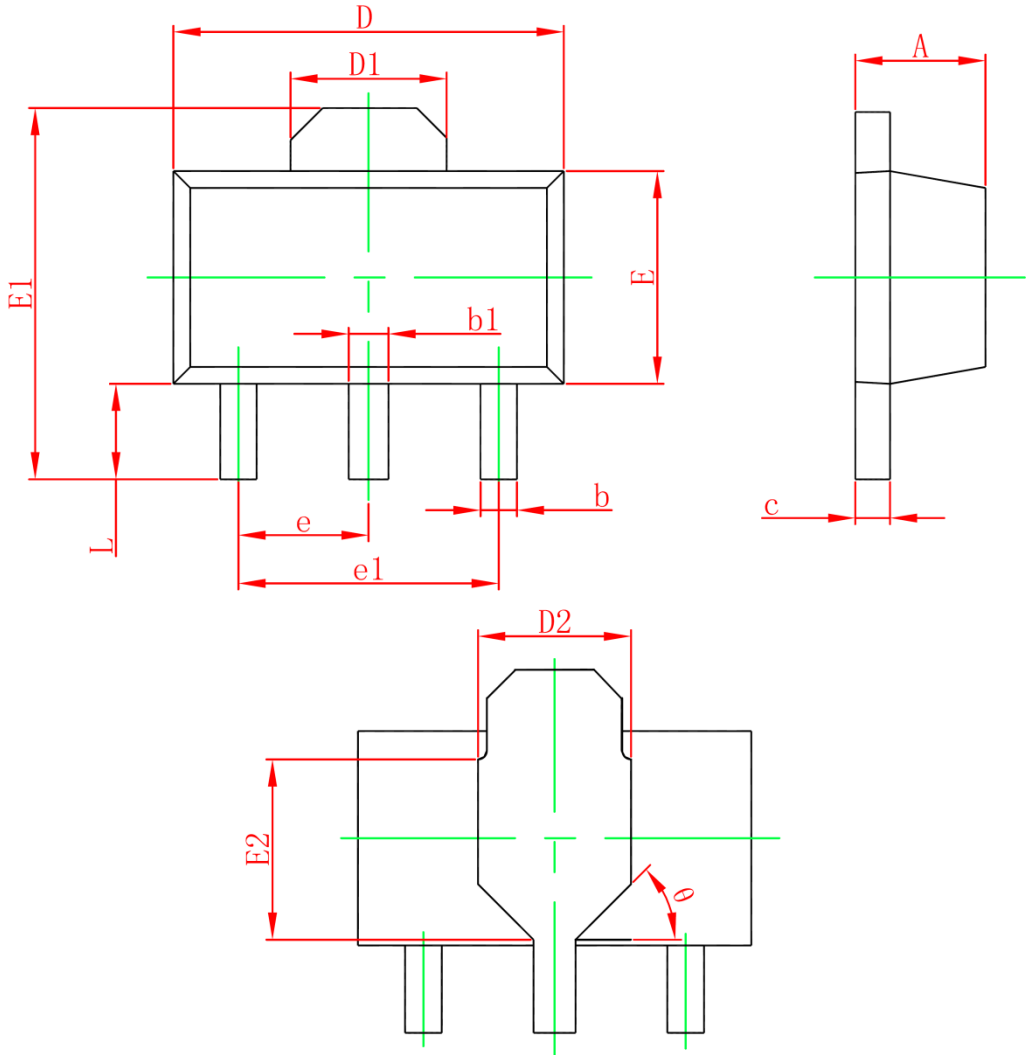


Gate-Charge Characteristics



Transient Thermal Resistance

SOT-89 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF.	
D2	1.750 REF.	
E	2.300	2.600
E1	3.940	4.250
E2	1.900 REF.	
e	1.500 TYP.	
e1	3.000 TYP.	
L	0.900	1.200
θ	45°	