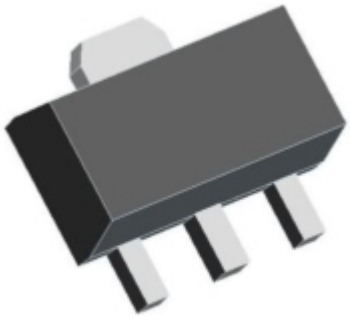
Product Summary

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

Feature

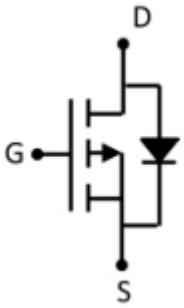
- High density cell design for ultra low RDS(on)
- Fast Switching Speed
- Low Gate Charge

Package



SOT-89

Circuit diagram



Marking

10P19 =Device Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

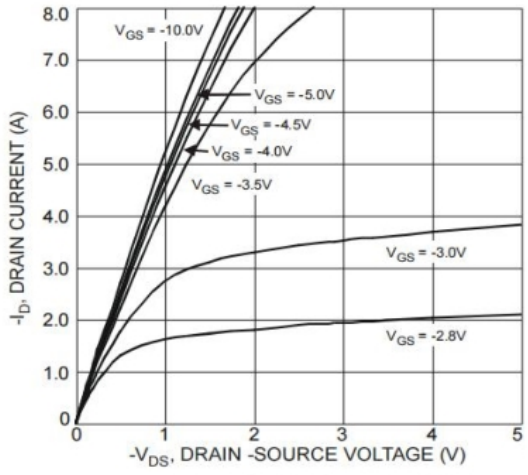
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous(T_A = 25℃)	I_D	-3.5	W
Pulsed Drain Current[1]	I_{DM}	-14	A
Power Dissipation (T_A = 25℃)	P_D	2.5	W
Thermal Resistance Junction-ambient	$R_{\theta JA}$	50	℃/ W
Storage Temperature	T_{STG}	-55~ +150	℃
Junction Temperature	$T_{J,}$	-55~ +150	℃

Electrical characteristics

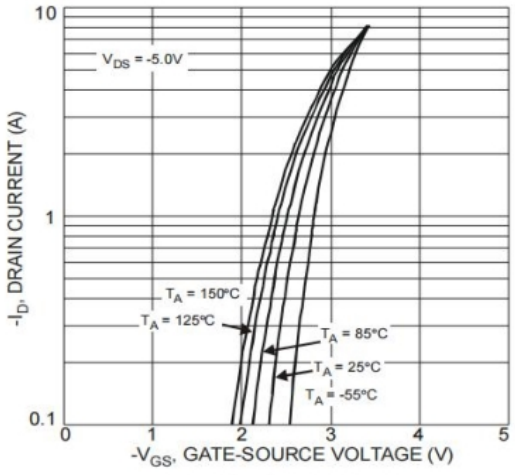
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =-250μA	-100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-100V,V_{GS} = 0V			-1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-0.5A		190	250	mΩ
		V_{GS} =-4.5V, I_D =-0.4A		210	300	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS}=-25V,V_{GS}=0V, f=1MHz		1239		pF
Output Capacitance	C_{oss}			42		
Reverse Transfer Capacitance	C_{rss}			38		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-50V, V_{GS}=-10V, R_G=10Ω, I_D=-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(4.5V)	Q_g	V_{DS}=-60V, V_{GS}=-10V, I_D=-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}	V_{GS}=0V, I_S=-1A			-1.2	V

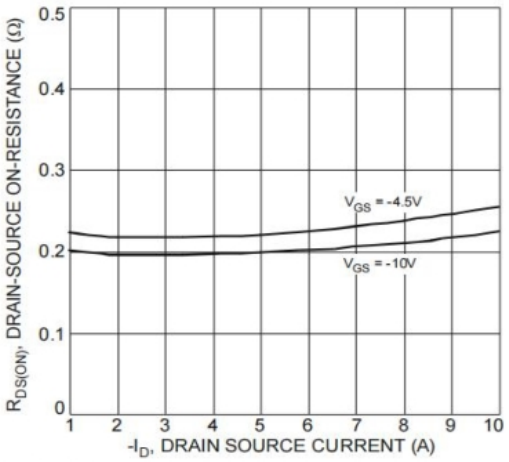
Typical Characteristics



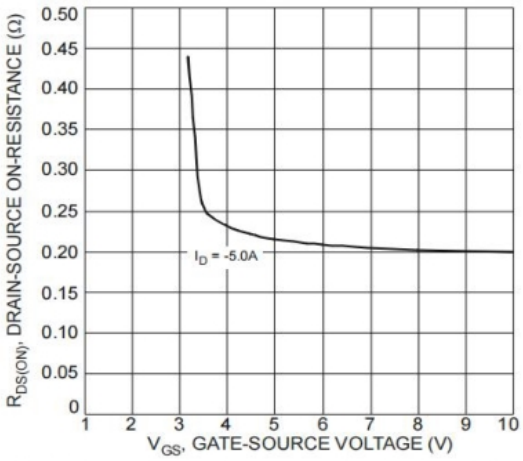
Typical Output Characteristics



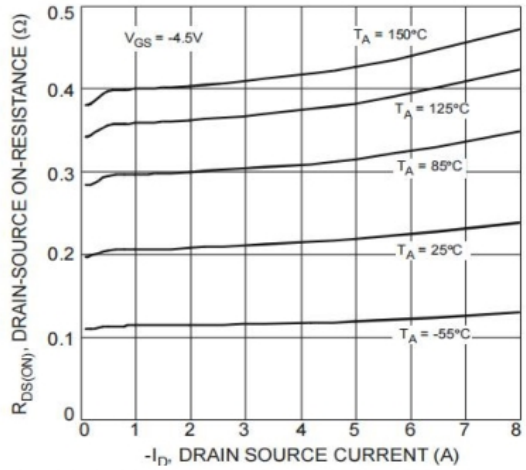
Transfer Characteristics



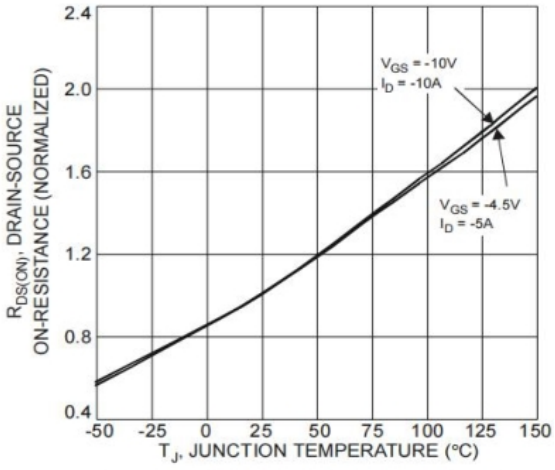
On-Resistance vs. Drain Current and Gate Voltage



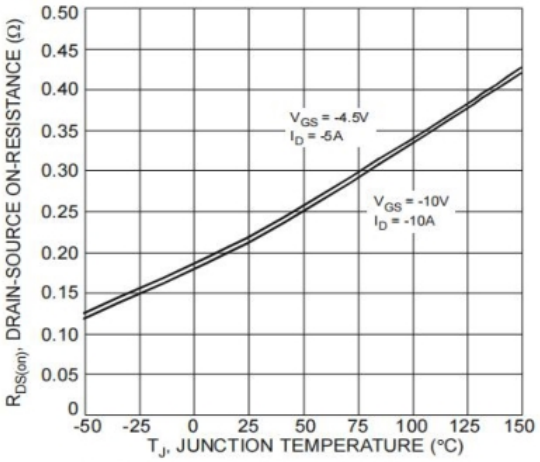
Drain-Source On-Resistance vs.Gate-Source Voltage



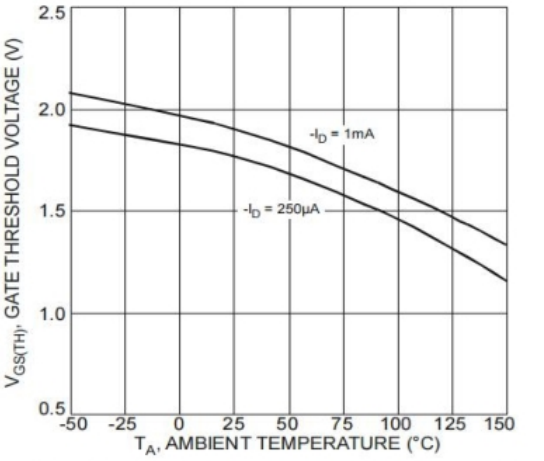
On-Resistance vs. Drain Current and Temperature



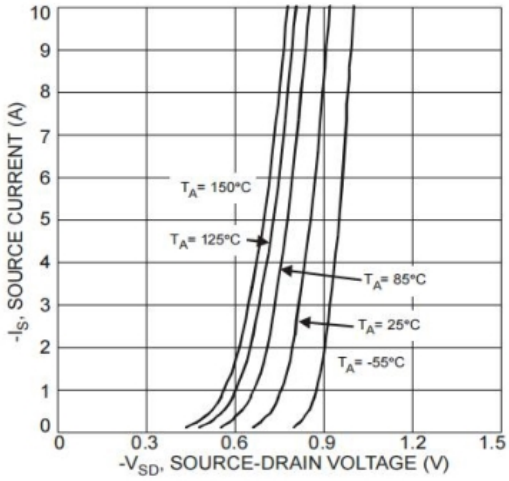
On-Resistance Variation with Temperature



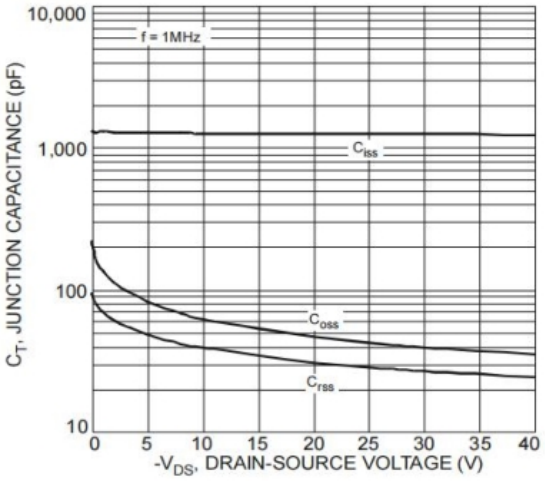
On-Resistance Variation with Temperature



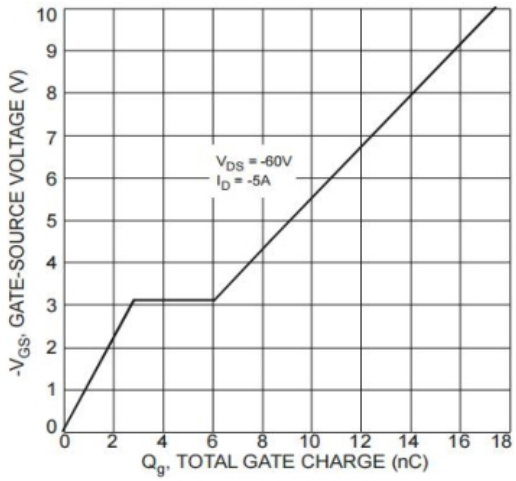
Gate Threshold Variation vs. Ambient Temperature



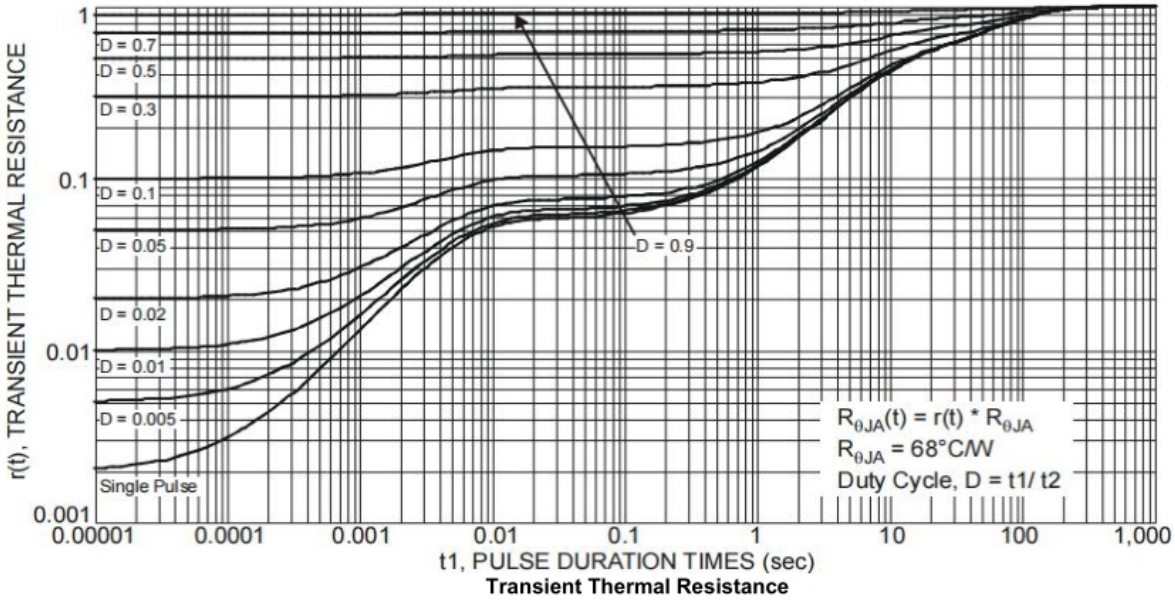
Diode Forward Voltage vs. Current



Typical Junction Capacitance

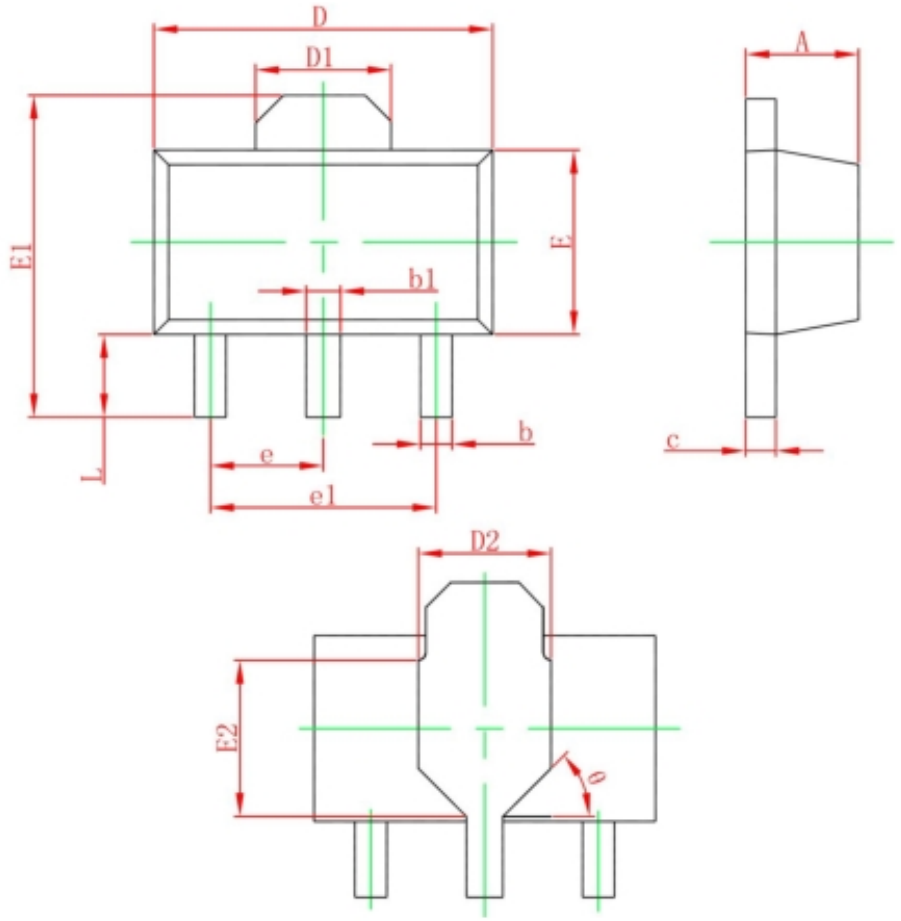


Gate-Charge Characteristics



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°	