

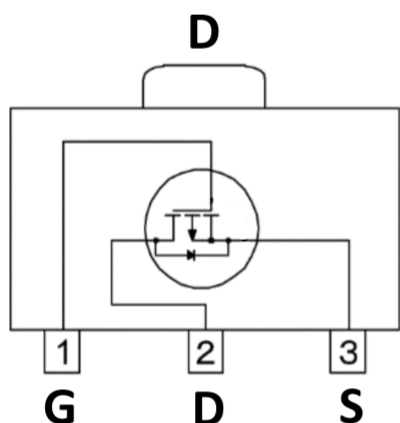
Product Summary

- V_{DS} -30 V
- I_{DS} -7.0A
- $R_{DS(ON)}$ (@ $V_{GS}=-10V$) <40m Ω

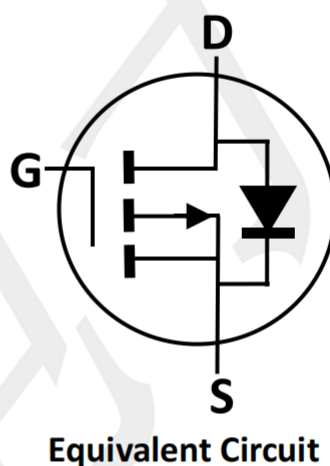
Application

- PWM applications
- Load switch
- Power management

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-7	A
Pulsed Drain Current	I_{DM}	-21	A
Total Power Dissipation	P_{DTOT}	1.5	W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Note : When mounted on 1" square PCB (FR4 material).

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	R_{thJA}	83	°C/W

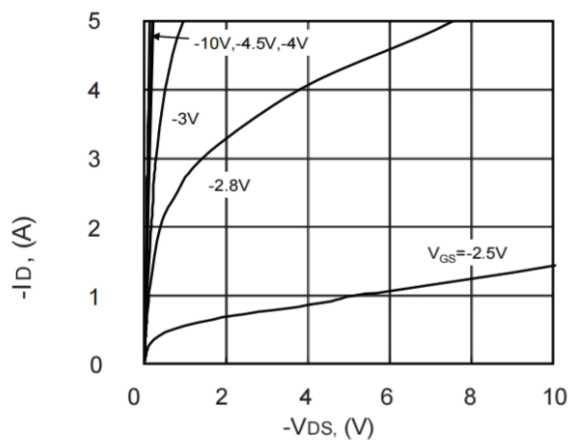
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-30	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.0	-1.5	-2.5	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	I_{DSS}	--	--	-1	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}=-10V, I_D=-7A$	$R_{DS(on)}$	--	27	35	m Ω
	$V_{GS}=-4.5V, I_D=-4A$		--	37	40	
Forward Transconductance (Note 2)	$V_{DS}=-5V, I_D=-4.6A$	g_{fs}	--	10	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}=-15V,$ $I_D=-5A,$ $V_{GS}=-5V$	Q_g	--	13	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	3.5	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	4.5	--	
Input Capacitance	$V_{DS}=-55V, V_{GS}=0V,$ $F=1.0MHz$	C_{iss}	--	950	--	pF
Output Capacitance		C_{oss}	--	100	--	
Reverse Transfer Capacitance		C_{rss}	--	95	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}=-15V,$ $R_L=6\Omega,$ $V_{GS}=-10V,$ $R_{GEN}=10\Omega$	$t_{d(on)}$	--	10	--	nS
Rise Time (Note 3)		t_r	--	15	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	90	--	
Fall Time (Note 3)		t_f	--	50	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}=0V, I_F=-4.6A$	V_{SD}	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-7	A
Pulsed Current (Note 1)		I_{SM}	--	--	-21	A

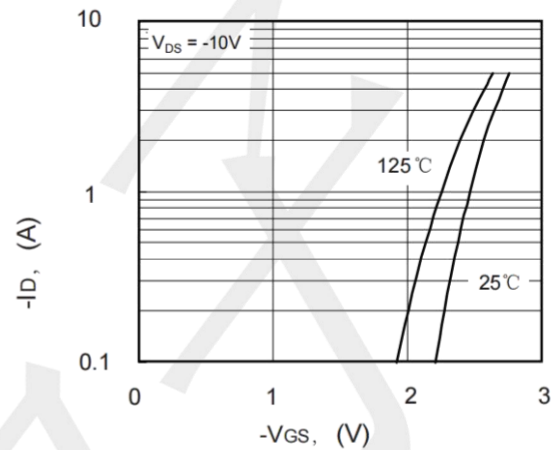
Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

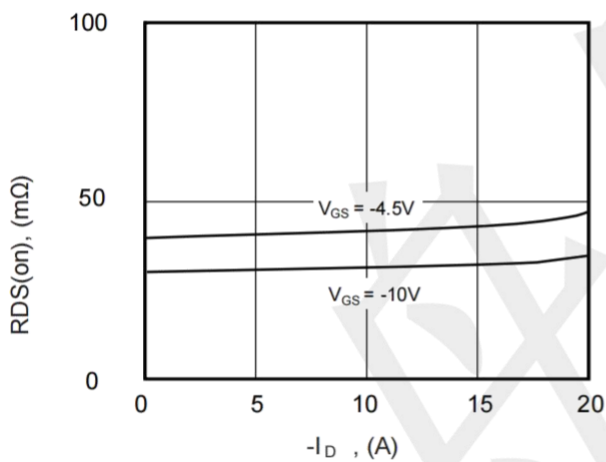
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



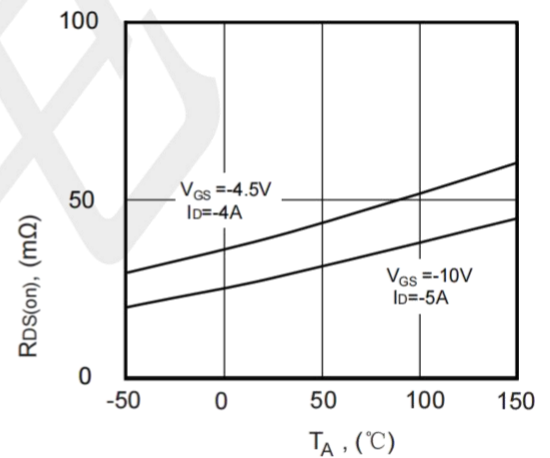
Typical Output Characteristics



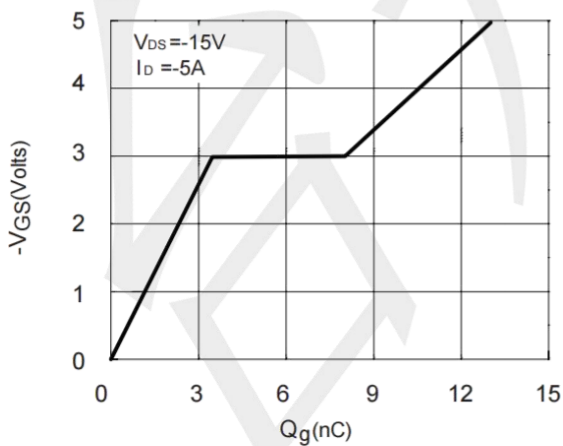
Transfer characteristics



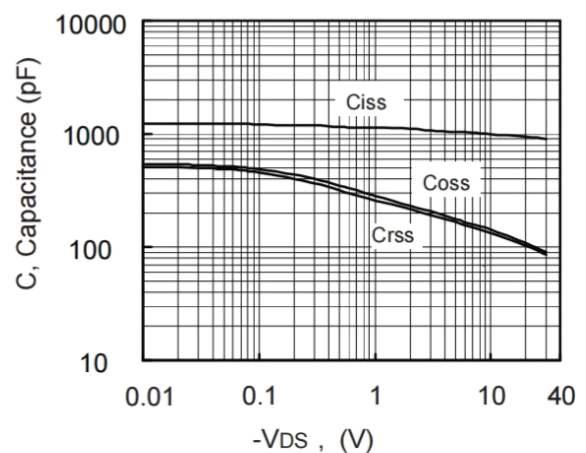
On-Resistance vs. Drain Current



On-Resistance vs. Ambient temperature



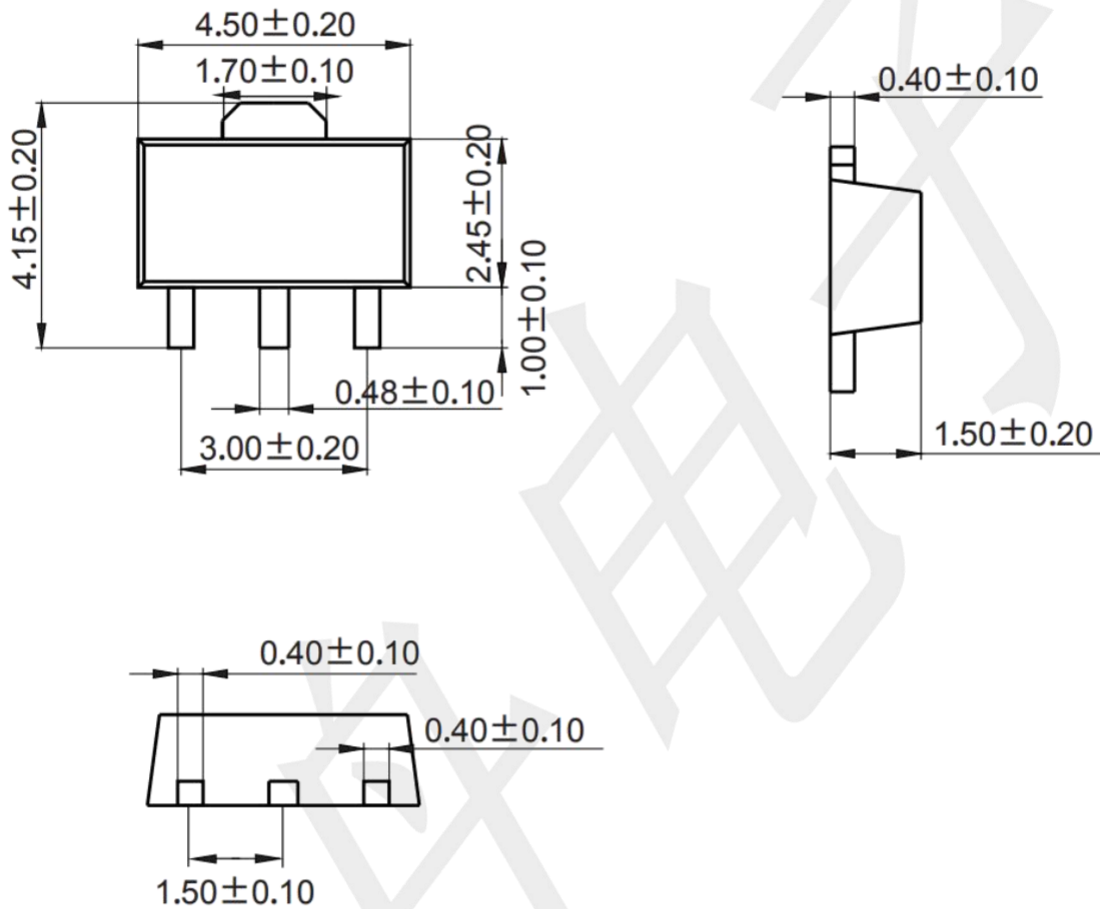
Gate Charge Characteristics



Capacitance Characteristics

Package Information -(unit: mm)

SOT89-3



Mounting Pad Layout (unit: mm)

