

# N-Channel Enhancement Mode MOSFET

HM3426B

## DESCRIPTION

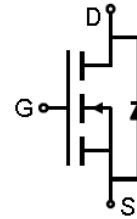
The HM3426B uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

## GENERAL FEATURES

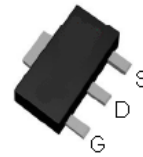
- RDS(ON) < 16mΩ @ VGS=4.5V  
RDS(ON) < 10mΩ @ VGS=10V
- High Power and current handling capability
- Lead free product is available
- Surface Mount Package

## Application

- PWM applications
- Load switch
- Power management



Schematic diagram



Top View SOT-89

### ABSOLUTE MAXIMUM RATINGS(T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Diode Continuous Forward Current	I <sub>S</sub> (T <sub>C</sub> =25°C)	5	A
Continuous Drain Current (Note 1)	I <sub>D</sub> (T <sub>C</sub> =25°C)	18	A
Pulse Drain Current Tested	I <sub>DM</sub> (T <sub>A</sub> =25°C)	36	A
Maximum Power Dissipation	P <sub>D</sub> (T <sub>C</sub> =25°C)	20	W
Maximum Power Dissipation	P <sub>D</sub> (T <sub>A</sub> =25°C)	3.5	W
	P <sub>D</sub> (T <sub>A</sub> =70°C)	2.2	W
Thermal Resistance,Junction-to-Ambient(t<10s)	R <sub>θJA</sub>	35	°C/W
Maximum Operating Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 To 150	°C

### NOTES:

1. Max continuous current is limited by bonding wire.

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

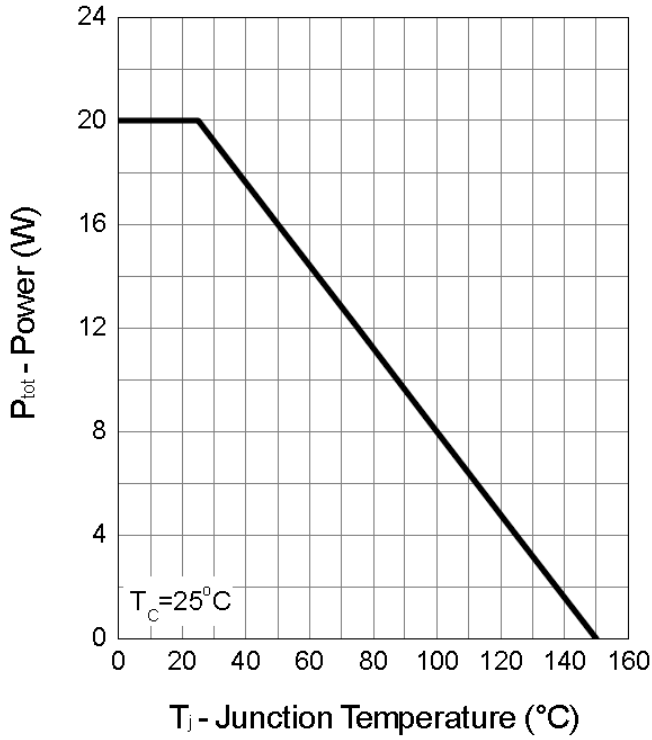
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 10$	$\mu A$
<b>ON CHARACTERISTICS</b> (Note 2)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.4	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	-	8.2	10	m $\Omega$
		$V_{GS}=4.5V, I_D=8A$	-	12.3	16	m $\Omega$
<b>DYNAMIC CHARACTERISTICS</b> (Note 3)						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, F=1.0MHz$	-	450	600	PF
Output Capacitance	$C_{oss}$		-	318	-	PF
Reverse Transfer Capacitance	$C_{rss}$		-	22	-	PF
<b>SWITCHING CHARACTERISTICS</b> (Note 3)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=15V, R_L=15\Omega, V_{GEN}=10V, R_G=6\Omega, I_D=1A$	-	8.5	16	nS
Turn-on Rise Time	$t_r$		-	10	18	nS
Turn-Off Delay Time	$t_{d(off)}$		-	14	26	nS
Turn-Off Fall Time	$t_f$		-	10.6	19	nS
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=10A, V_{GS}=10V$	-	8	12	nC
Gate-Source Charge	$Q_{gs}$		-	1.6	-	nC
Gate-Drain Charge	$Q_{gd}$		-	1.2	-	nC
Body Diode Reverse Recovery Time	$T_{rr}$	$I_{DS}=10A, di/dt=100A/\mu s$	-	20.5	-	nS
Body Diode Reverse Recovery Charge	$Q_{rr}$		-	7.2	-	nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Diode Forward Voltage (Note 2)	$V_{SD}$	$V_{GS}=0V, I_S=5A$	-	0.8	1.1	V

NOTES:

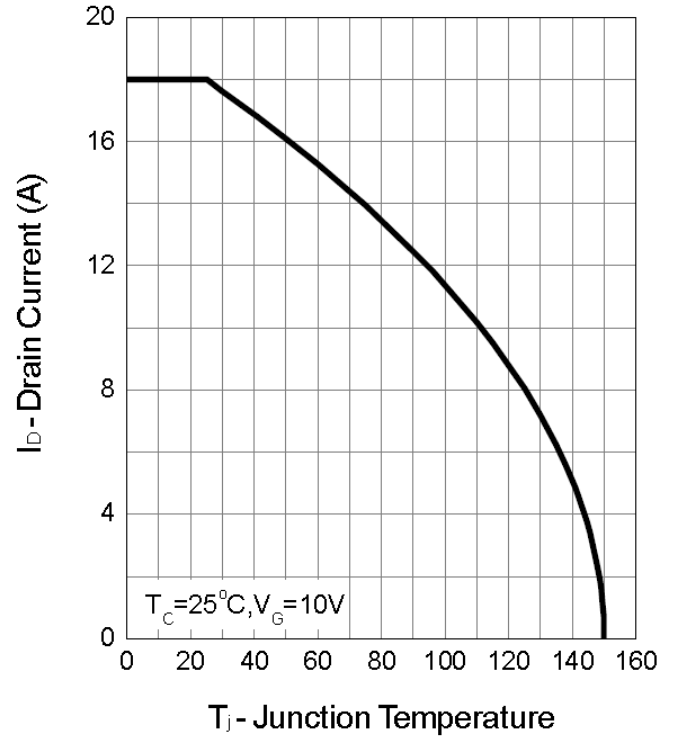
- Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production testing

Typical Operating Characteristics

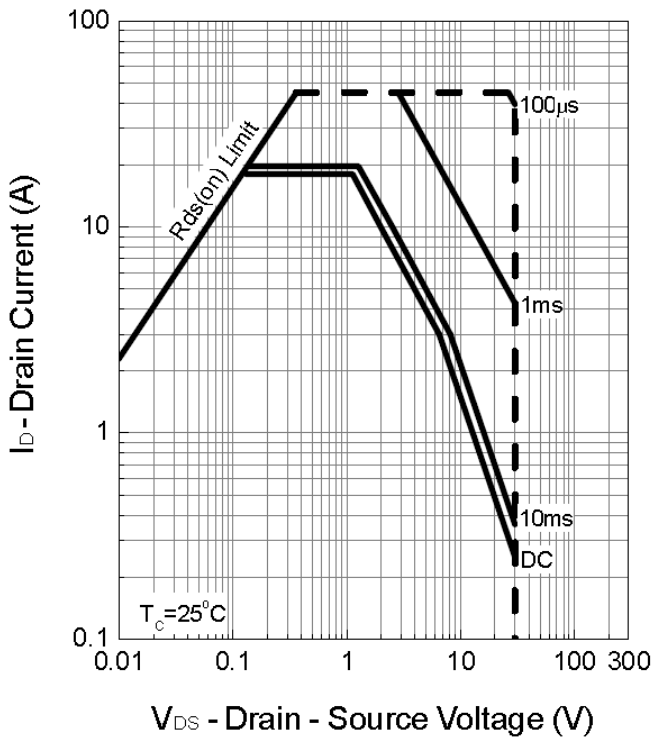
Power Dissipation



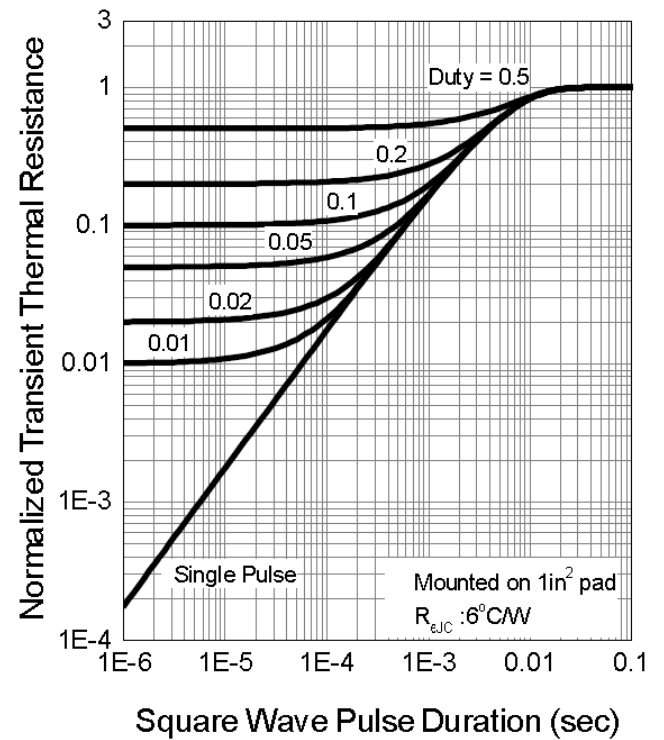
Drain Current



Safe Operation Area

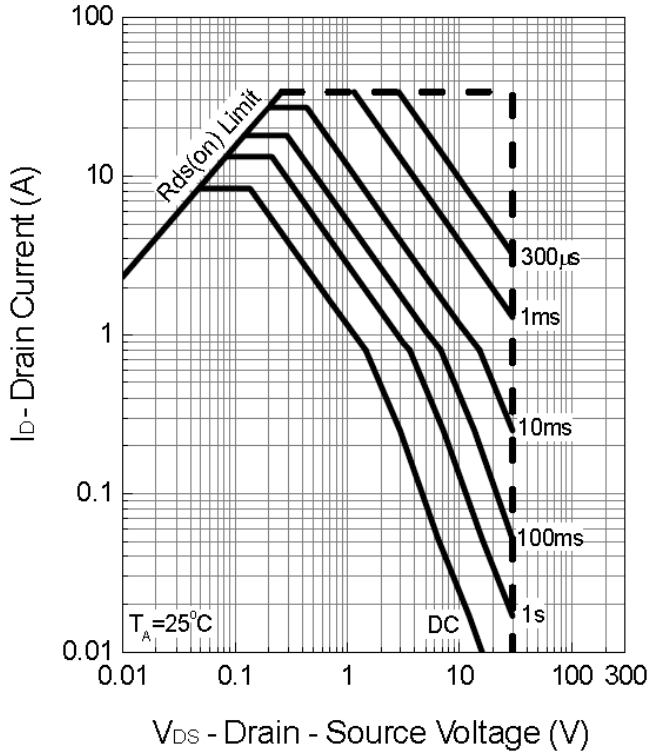


Thermal Transient Impedance

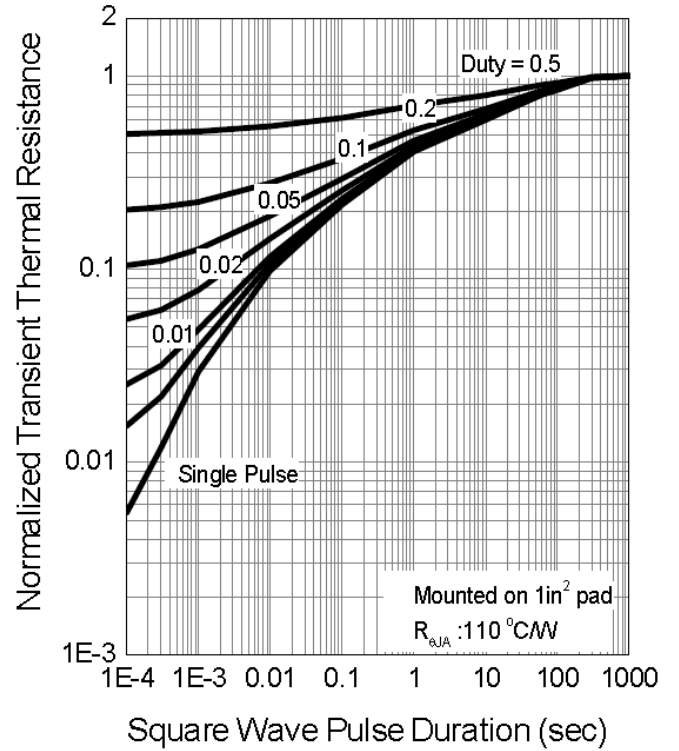


Typical Operating Characteristics(Cont.)

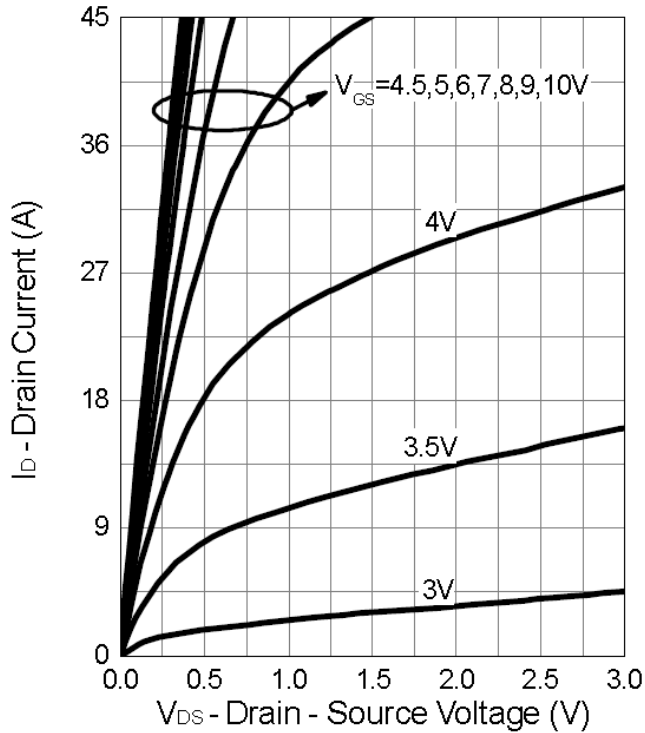
Safe Operation Area



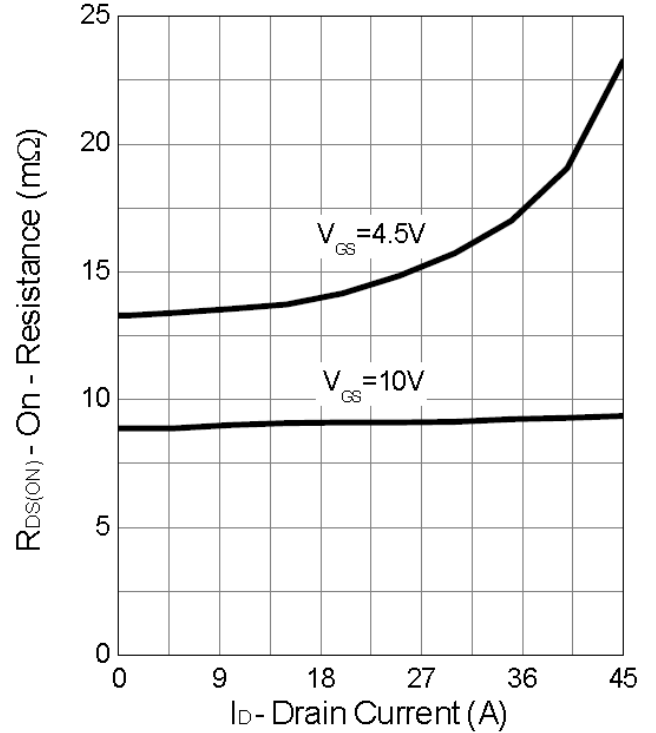
Thermal Transient Impedance



Output Characteristics

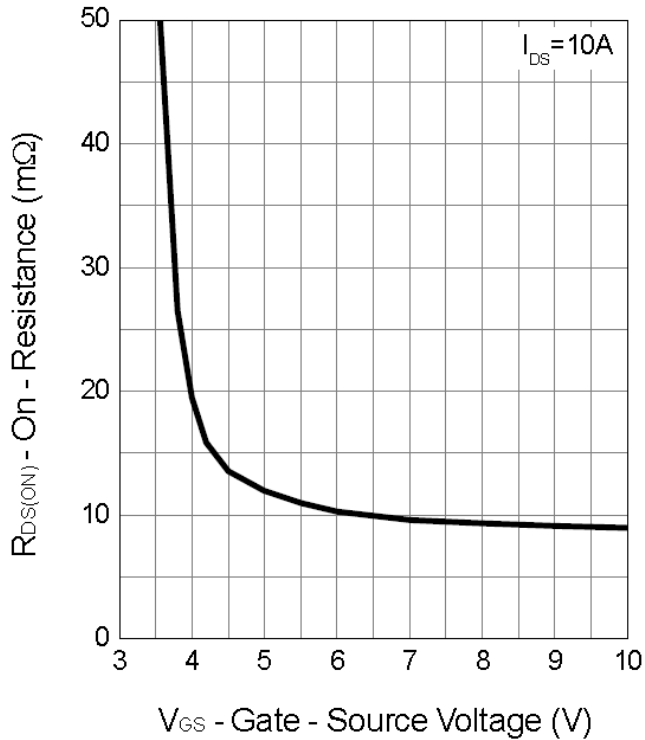


Drain-Source On Resistance

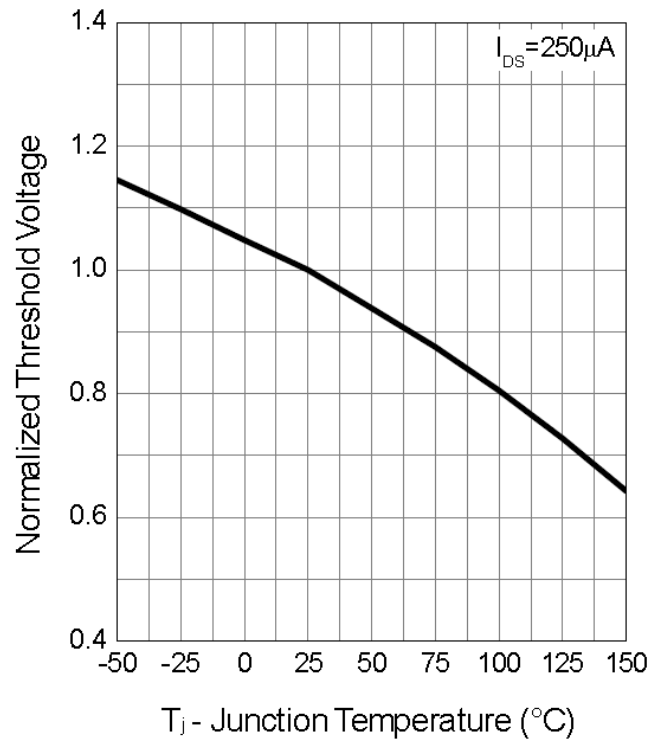


Typical Operating Characteristics (Cont.)

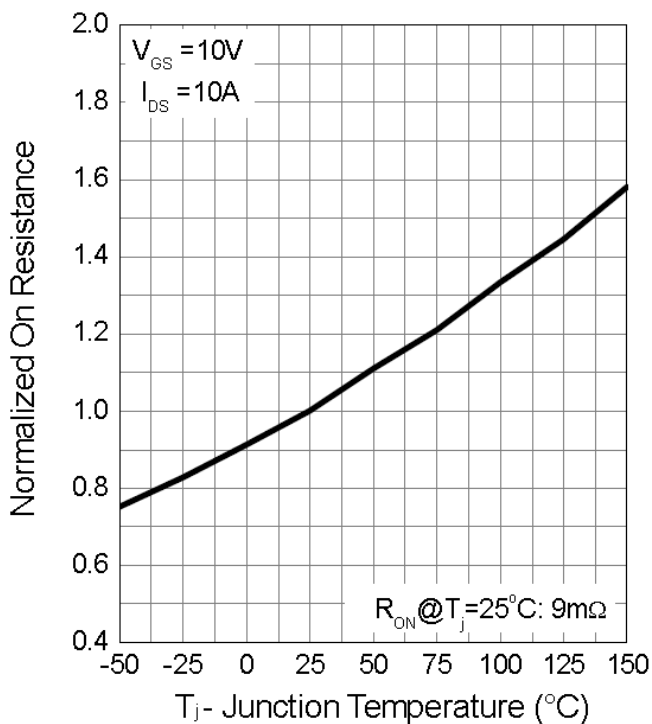
Gate-Source On Resistance



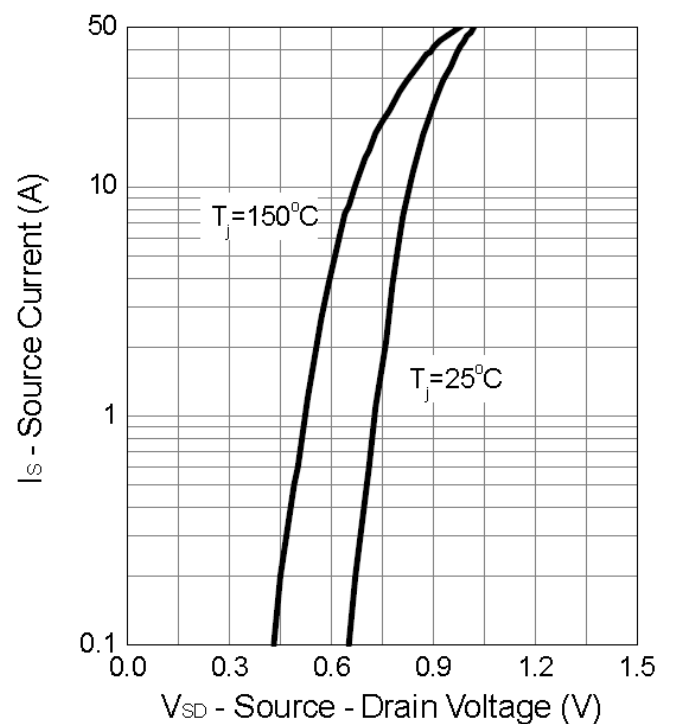
Gate Threshold Voltage



Drain-Source On Resistance

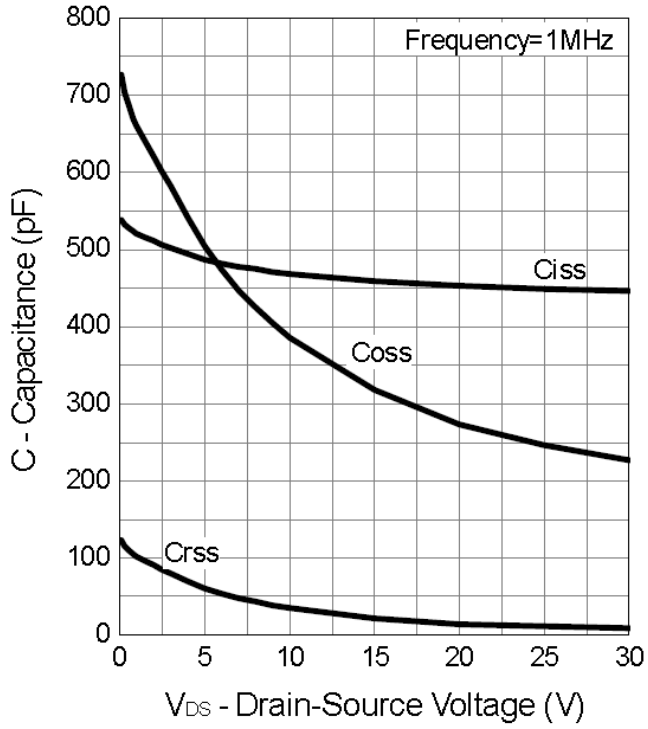


Source-Drain Diode Forward

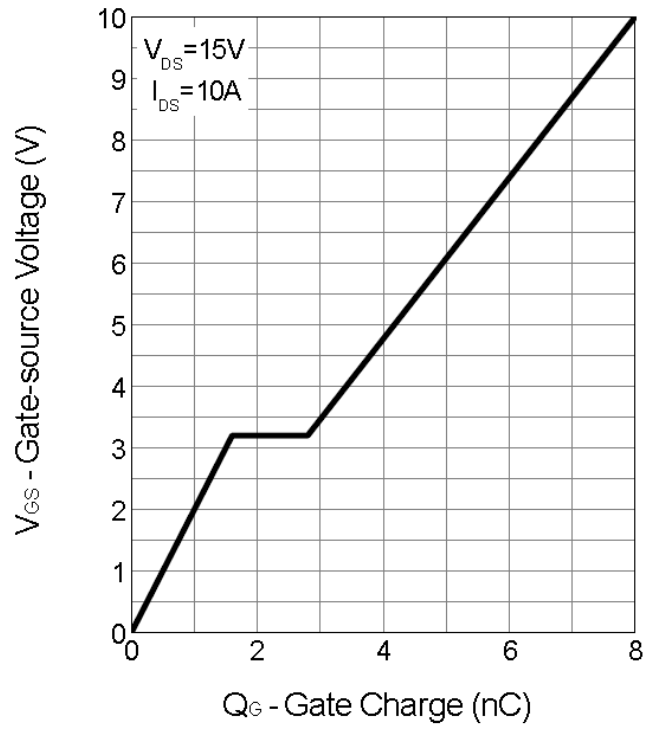


Typical Operating Characteristics (Cont.)

Capacitance

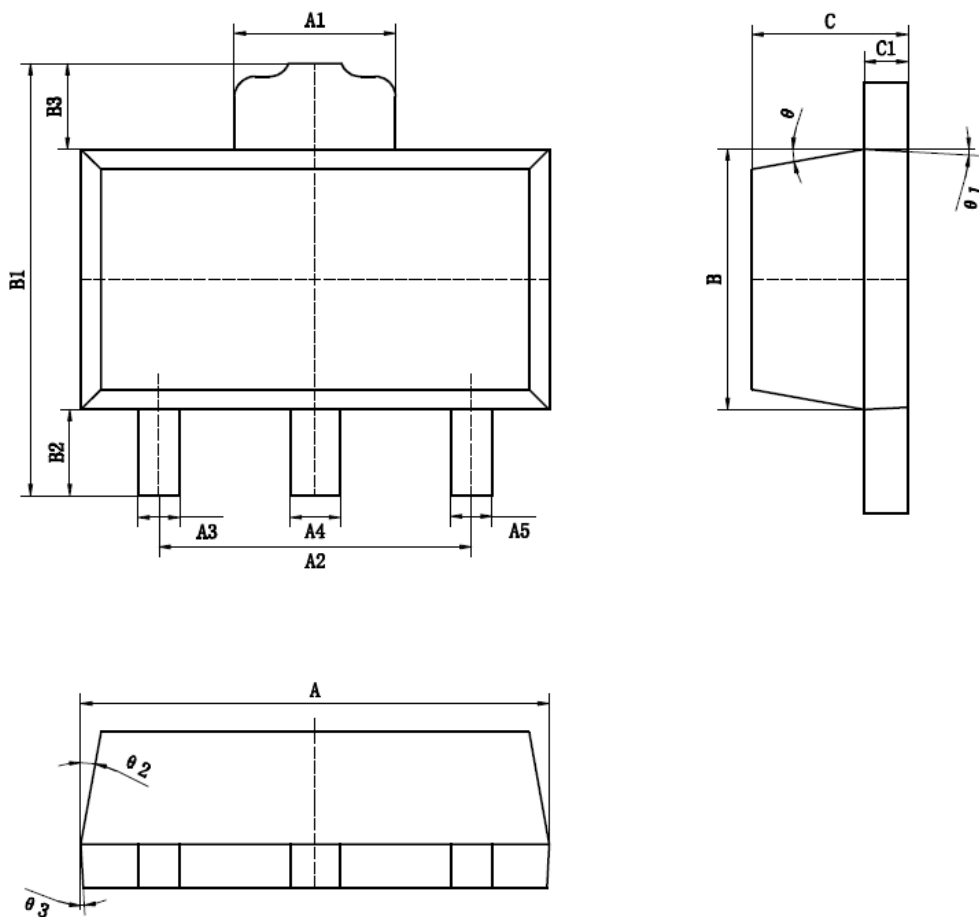


Gate Charge



Package Information

SOT89-3 Package



标注	尺寸	最小 (mm)	最大 (mm)	标注	尺寸	最小 (mm)	最大 (mm)
A		4.40	4.60	B3		0.82	0.83
A1		1.65	1.75	C		1.40	1.60
A2		2.95	3.05	C1		0.35	0.45
A3		0.35	0.45	theta		6° TYP4	
A4		0.43	0.53	theta 1		3° TYP4	
A5		0.35	0.45	theta 2		6° TYP4	
B		2.40	2.60	theta 3		3° TYP4	
B1		4.05	4.25				
B2		0.82	0.83				