

P-Channel Enhancement-Mode MOSFET (-30V, -9.1A)


PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(on)} (mΩ) Max
-30V	-9.1A	20 @ V _{GS} = -10V, I _D = -9.1A
		35 @ V _{GS} = -4.5V, I _D = -6.9A

Features

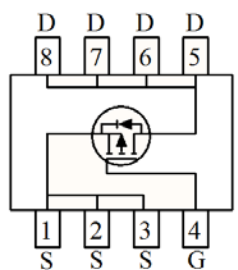
- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Ordering information : GS4435(Lead(Pb)-free and halogen-free)
- Lead free product is acquired
- Surface mount Package

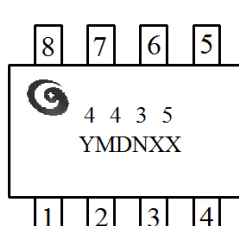




SOP-8

Pin 1 / 2 / 3: Source
Pin 4: Gate
Pin 5 / 6 / 7 / 8: Drain





GS 4435

→ Product Code
→ Package Code: SOP-8
→ Company Code: GEMMICRO

YMDNXX

→ Production control code
→ the stream code
→ Date code
→ Month code
→ Year code

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

Symbol	Parameter	Ratings	Units
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current (Continuous)	-9.1	A
I _{DM}	Drain Current (Pulsed) ^a	-36	A
P _D	Total Power Dissipation @T _A =25°C	2.5	W
I _{AS}	Avalanche Current, Single pulse @L=0.3mH ^c	-20	A
E _{AS}	Avalanche Energy, Single pulse @L=0.3mH ^c	60	mJ
I _S	Maximum Diode Forward Current	-2.1	A
T _j , T _{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	50	°C/W

Note : a: Repetitive Rating; Pulse width limited by the maximum junction temperature.

b: 1-in² 2oz Cu PCB board

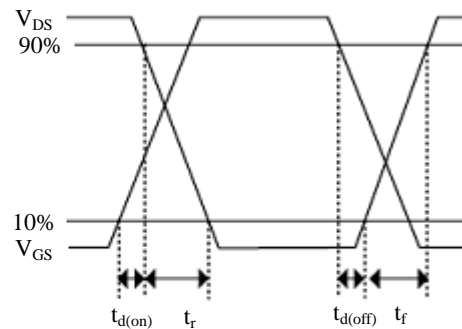
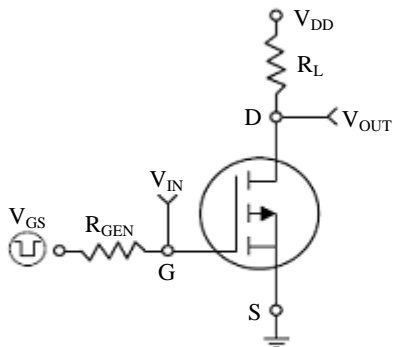
c: UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_A=25°C).

Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
• On Characteristics ^d						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-	-3	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-9.1A$	-	15	20	m Ω
		$V_{GS}=-4.5V, I_D=-6.9A$	-	20	35	
g_{FS}	Forward Transconductance	$V_{DS}=-10V, I_D=-9.1A$	-	21	-	S
• Dynamic Characteristics ^e						
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	-	2253	-	pF
C_{oss}	Output Capacitance		-	555	-	
C_{rss}	Reverse Transfer Capacitance		-	253	-	
• Switching Characteristics ^e						
Q_g	Total Gate Charge	$V_{DS}=-15V, I_D=-4.6A, V_{GS}=-5V$	-	23	-	nC
Q_{gs}	Gate-Source Charge		-	7	-	
Q_{gd}	Gate-Drain Charge		-	8.5	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-15V, R_L=5\Omega, I_D=-1A,$ $V_{GS}=-10V, R_{GEN}=6\Omega$	-	13	-	nS
t_r	Turn-on Rise Time		-	7	-	
$t_{d(off)}$	Turn-off Delay Time		-	115	-	
t_f	Turn-off Fall Time		-	36	-	
• Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-2.1A$	-	-	-1.3	V

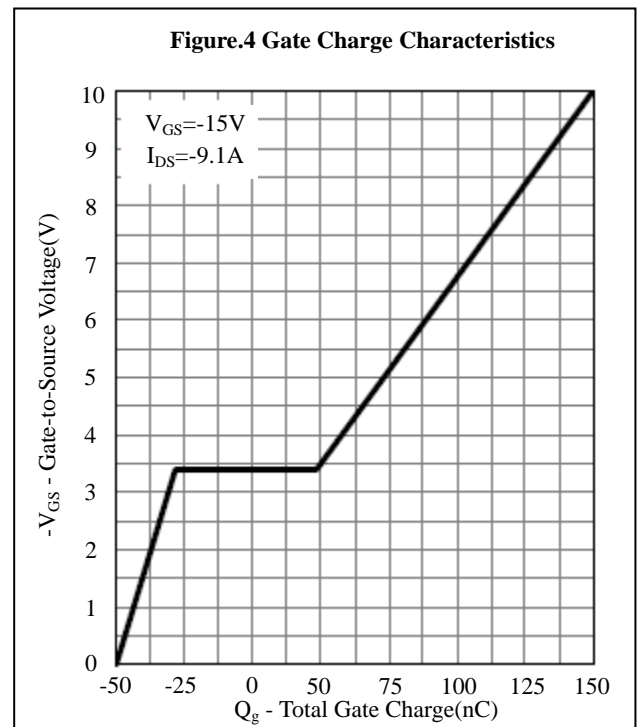
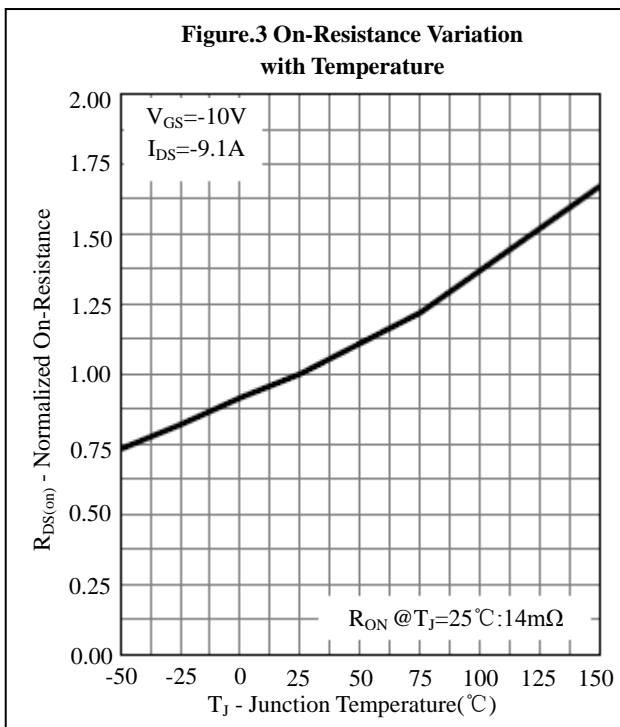
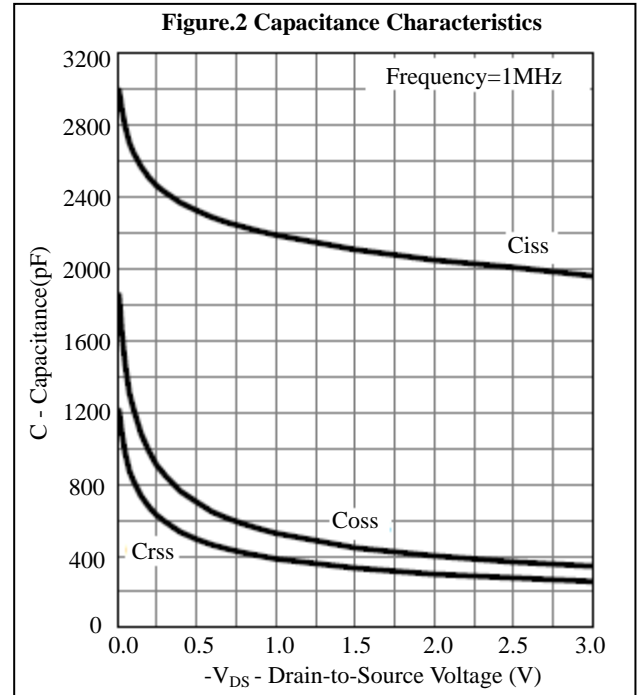
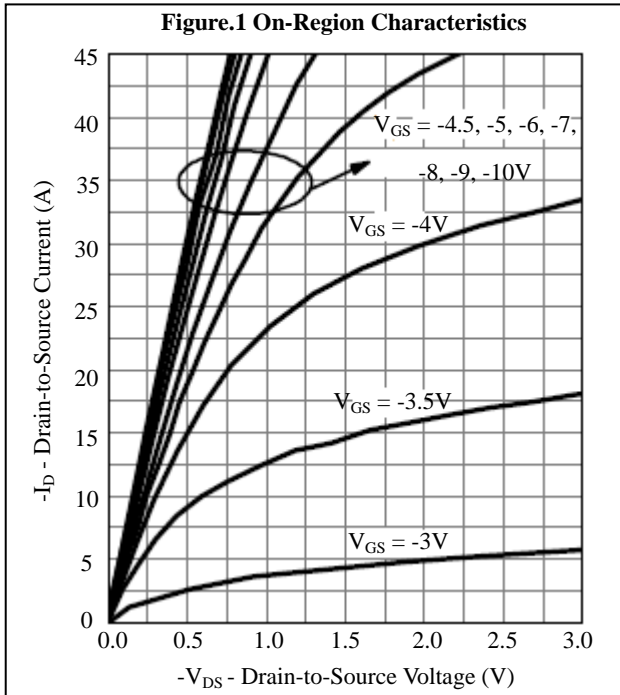
Note: d: Pulse Test : Pulse Width < 300 μ s, Duty Cycle < 2%

e: Guaranteed by design, not subject to production testing.

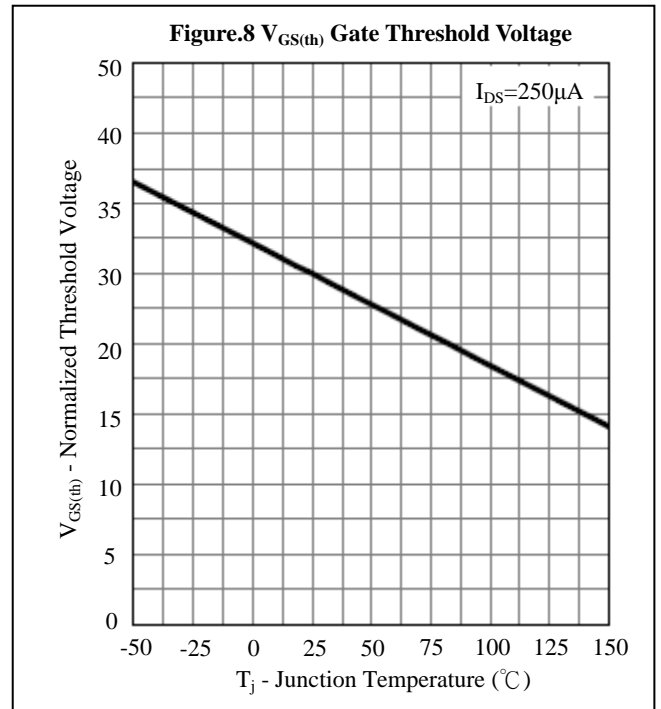
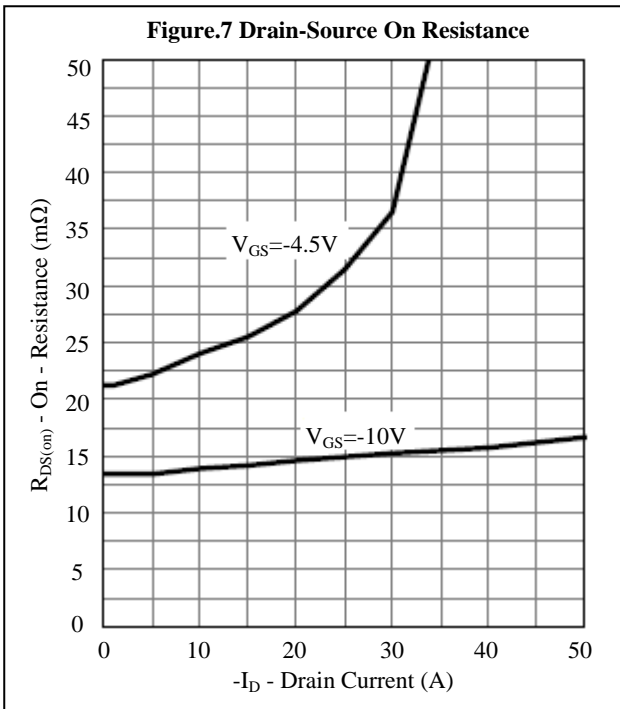
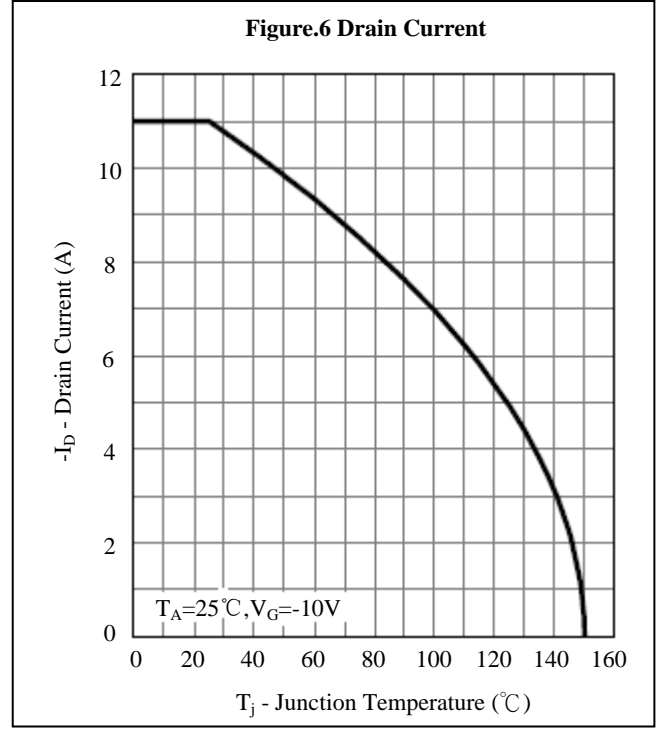
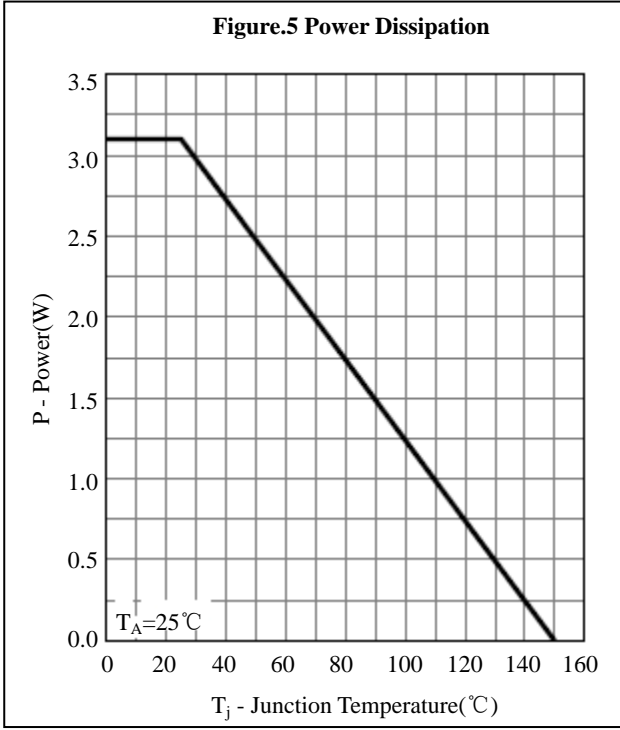


Switching Test Circuit and Switching Waveforms

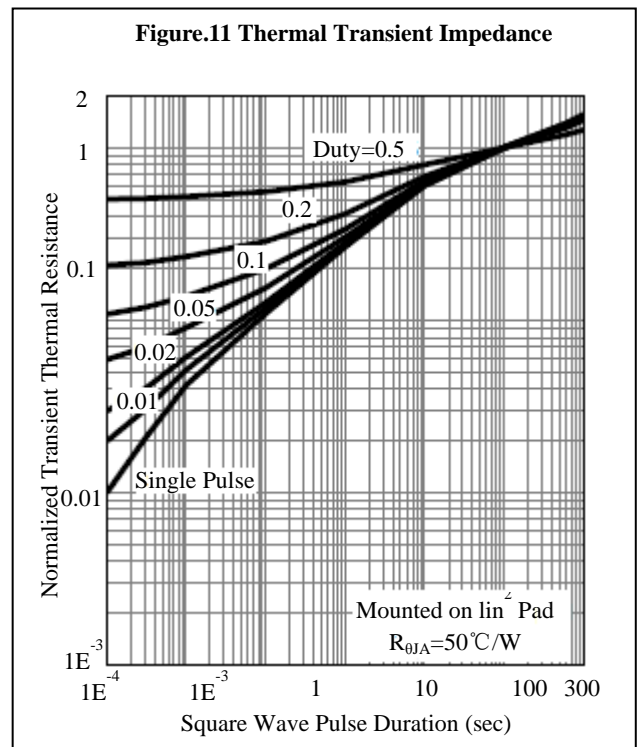
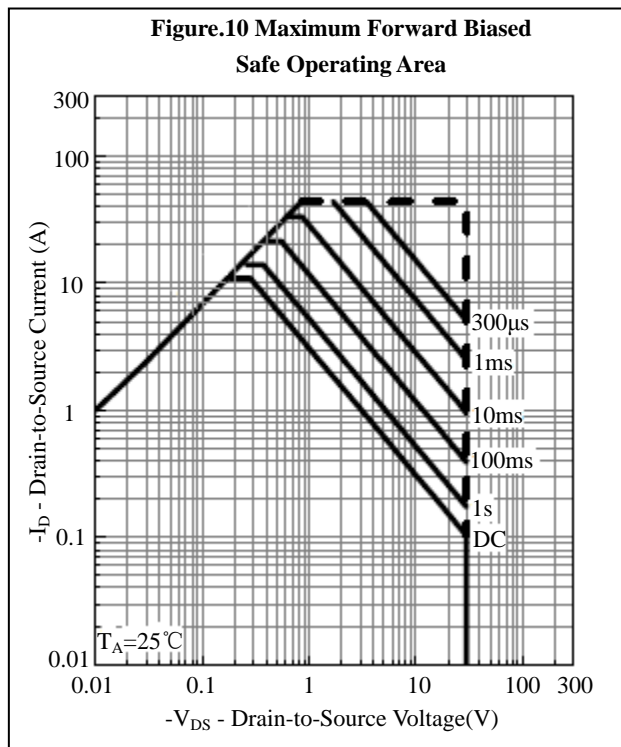
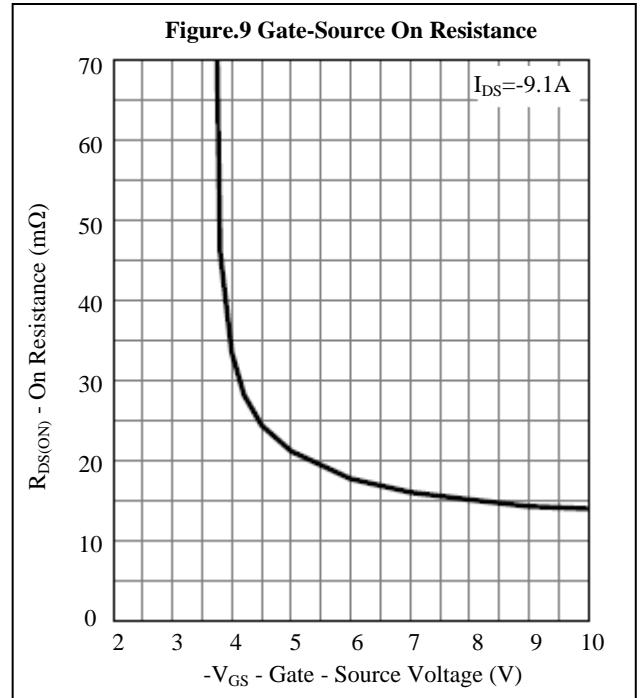
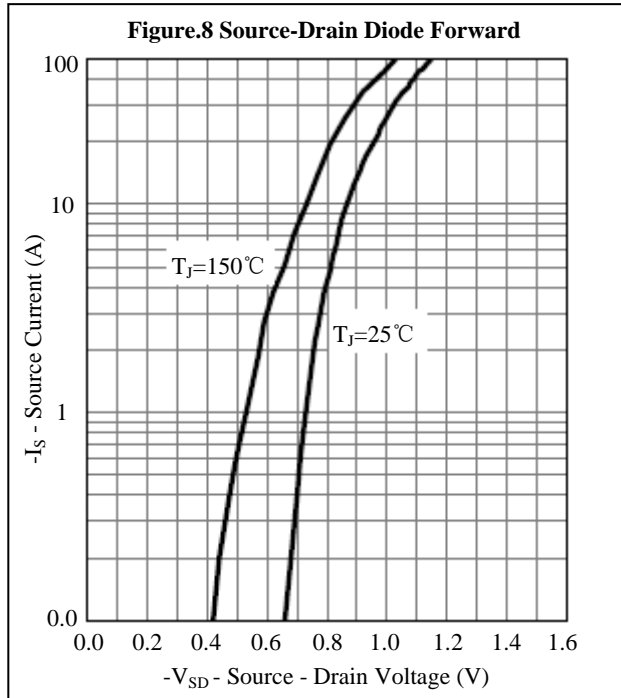
Characteristics Curve



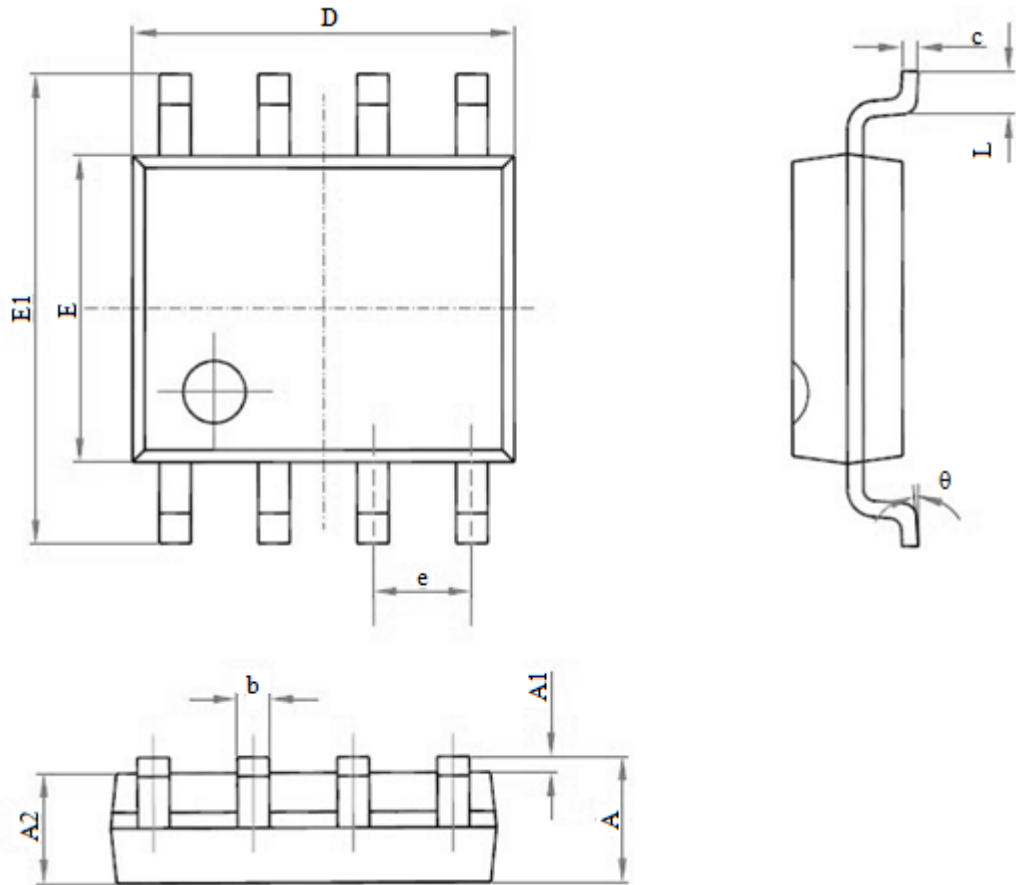
Characteristics Curve



Characteristics Curve



SOP-8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters (MM)		Dimensions In Inches (MIL)	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.310	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Notice

1. Specification of the products displayed herein is subject to change without notice. Continuous development may necessitate changes in technical data without notice. GEMMICRO or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

2. Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.