

Features

- ESD improved capability
- Depletion-mode (normally-on)

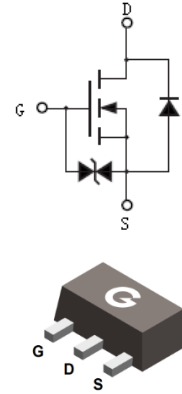
HF

Typical Applications

- Power switch circuit of adaptor and charger

Mechanical Data

- Case: SOT-89
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-89

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL126E	SOT-89	1000 pcs / Tape & Reel	126

Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DSX}	600	V
Gate -Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (T _C = 25°C)	I _D	0.04	A
Continuous Drain Current (T _C = 70°C)		0.032	A
Pulsed Drain Current	I _{DM}	0.16	A
Gate Source ESD(HBM-C = 100pF, R = 1.5kΩ)	V _{ESD(G-S)}	300	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	1	W
Thermal Resistance Junction-to-Case	R _{θJC}	50	°C/W
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	125	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSX}	Drain-to-Source Breakdown Voltage	V _{GS} = -5V, I _D = 250μA	600	-	-	V
I _{D(OFF)}	Off-state Drain-to-Source Current	V _{DS} = 600V, V _{GS} = -5V	-	-	0.1	μA
I _{GSS}	Gate-to-Source Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±10	μA
On Characteristics						
I _{DSS}	Saturated Drain-to-Source Current	V _{GS} = 0V, V _{DS} = 25V	12	-	-	mA
R _{DS(ON)}	Drain-to-Source On-resistance *2	V _{GS} = 0V,I _D = 3mA	-	-	700	Ω
		V _{GS} = 10V,I _D = 16mA	-	-	800	Ω
V _{GS(OFF)}	Gate-to-Source Cut-off Voltage	V _{DS} = 3V, I _D = 8μA	-2.7	-2	-1.0	V
gfs	Forward Transconductance	V _{DS} = 50V, I _D = 10mA	-	17	-	mS
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = -5V V _{DS} = 25V f = 1.0MHz	-	50	-	pF
C _{OSS}	Output Capacitance		-	4.53	-	
C _{RSS}	Reverse Transfer Capacitance		-	1.08	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time *3	V _{DD} = 300V V _{GS} = -5V~7V R _G = 6Ω I _D = 10mA	-	9.9	-	ns
t _r	Turn-on Rise Time *3		-	55.8	-	
t _{d(OFF)}	Turn-Off Delay Time *3		-	56.4	-	
t _f	Turn-Off Fall Time *3		-	136	-	
Q _G	Total Gate-Charge	V _{DD} = 400V V _{GS} = -5V~5V I _D = 10mA	-	1.14	-	nC
Q _{GS}	Gate to Source Charge		-	0.5	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	0.37	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _{SD} = 16mA, V _{GS} = -5V	-	-	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = 10mA, V _{GS} = 0V di/dt = 100A/μs	-	243	-	ns
Q _{rr}	Reverse Recovery Charge		-	636	-	nC
Gate-source Zener Diode						
V _{GSO}	Gate-source Breakdown Voltage	I _{GS} = ±1mA(Open Drain)	20	-	-	V

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Guaranteed by design, not subject to production

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

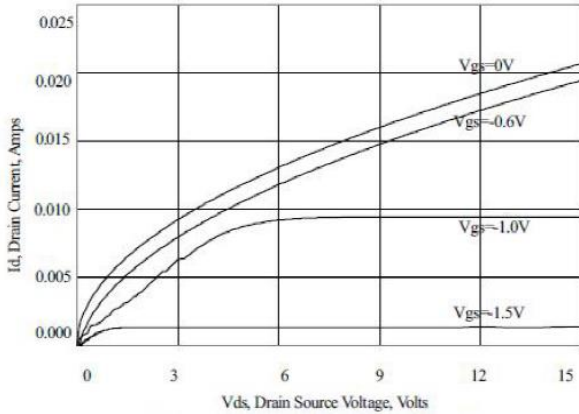


Fig 1 Typical Output Characteristics

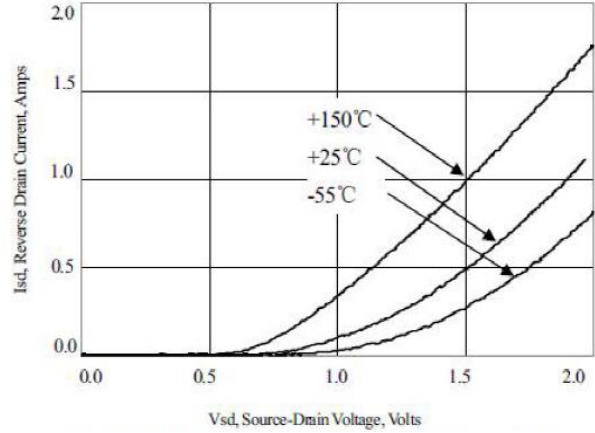


Fig 2 Body-Diode Characteristics

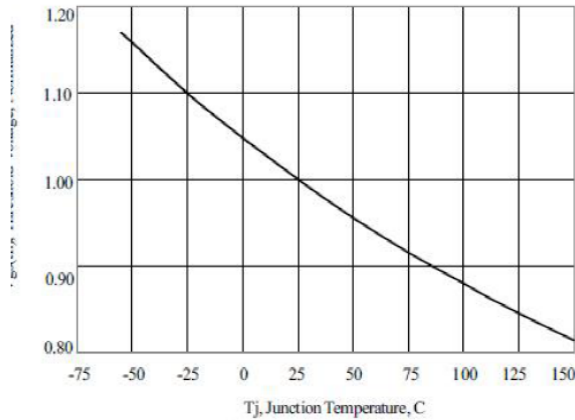


Fig 3 Normalized $V_{GS(th)}$ vs. Junction Temperature

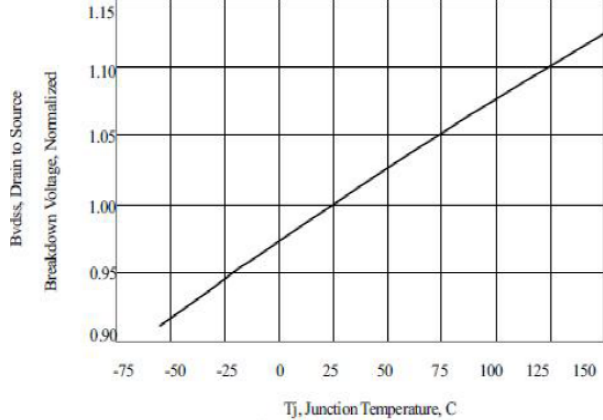


Fig 4 Normalized Breakdown Voltage vs. Junction Temperature

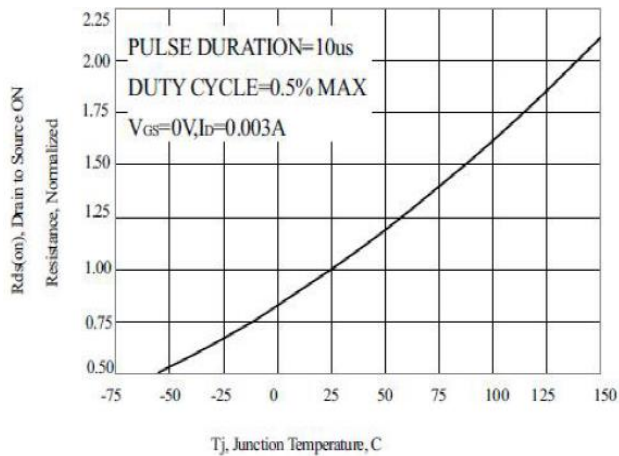


Fig 5 Normalized On-Resistance vs. Junction Temperature

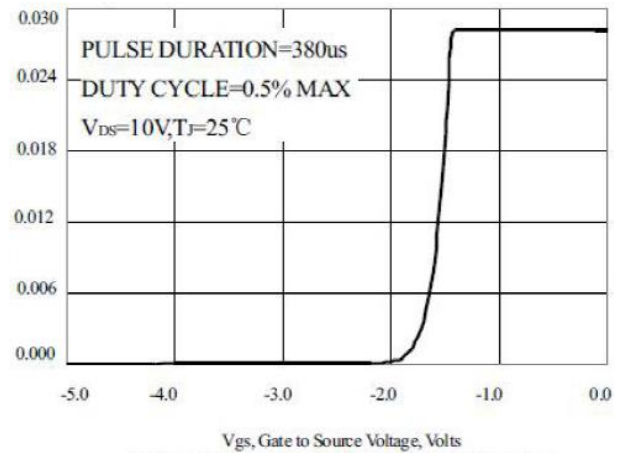


Fig 6 Transfer Characteristics

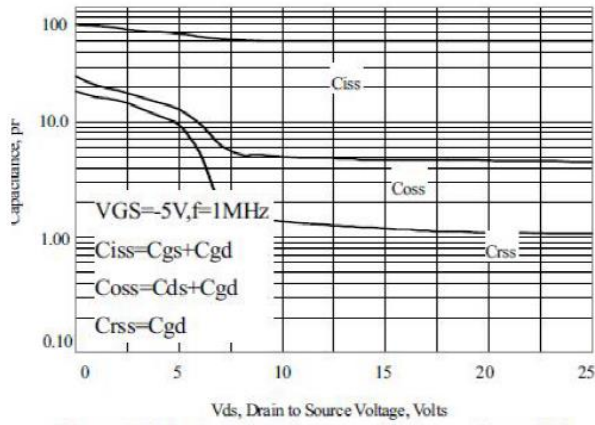


Fig 7 Capacitance Characteristics

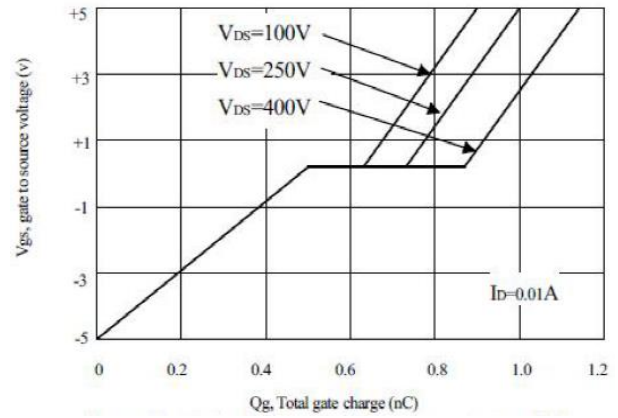
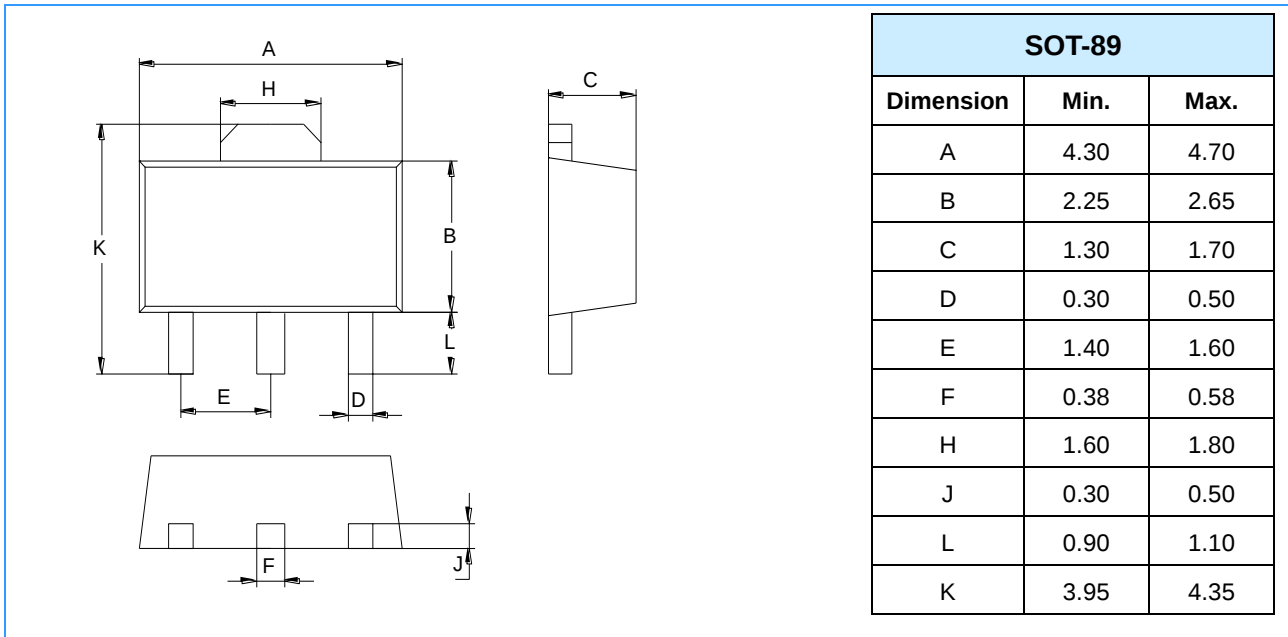
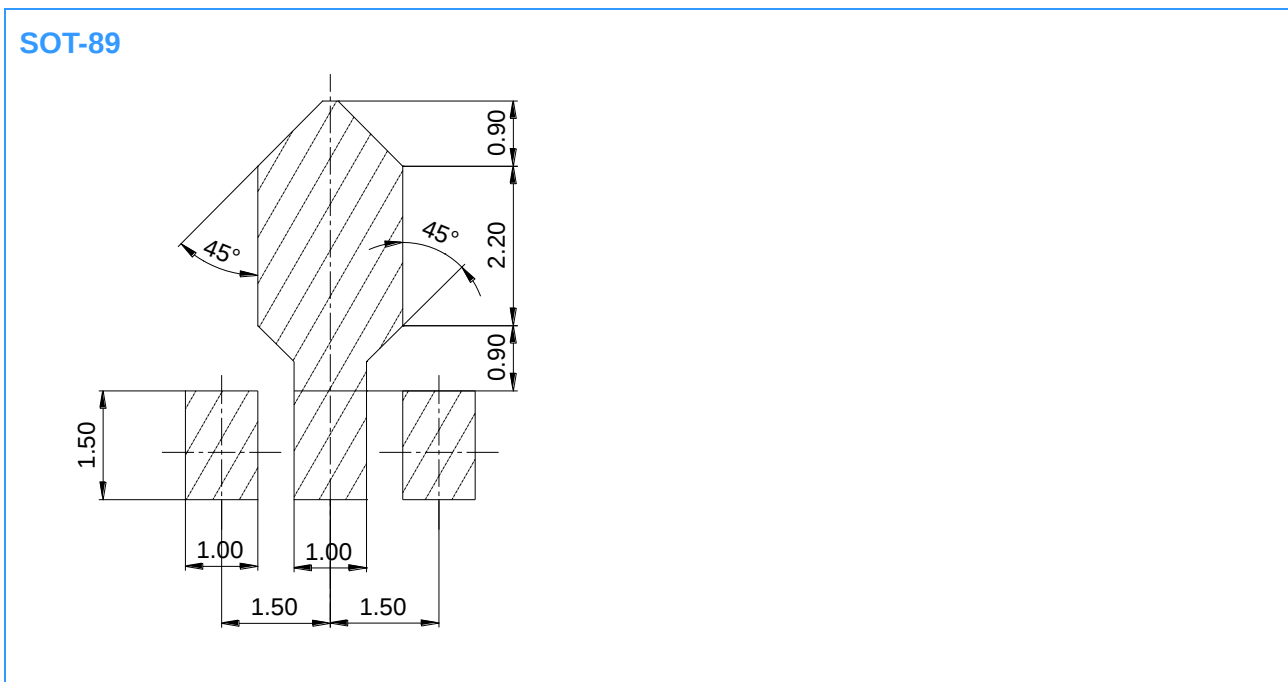


Fig 8 Gate-Charge Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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