

SOP-8 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=30V$
- $I_D=15A$
- $R_{DS(on)}@V_{GS}=10V < 8m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 12m\Omega$
- Low Gate Charge and R_{dson}
- Fast Switching Speedze
- Improved dv/dt capability, high ruggedness

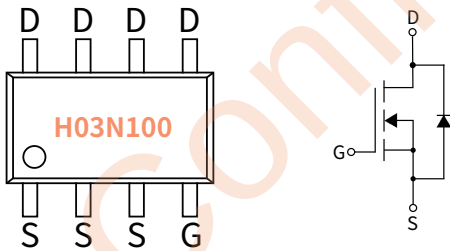
Applications

- DC/DC Converter
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

Mechanical Data

- Case: SOP-8
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Drain-source Voltage
30 V
Drain Current
15 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOP-8	R3	0.077	4000	8000	48000	13"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	30
Gate-source Voltage	V_{GS}	V	± 20
Drain Current	I_D	A	15
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	60
Total Power Dissipation	P_D	W	2.1
Single pulse avalanche energy ⁽²⁾	EAS	mJ	36
Junction temperature	T_J	°C	-55 ~+150
Storage temperature	T_{stg}	°C	-55 ~+150
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	°C / W	59

● Static Parameter Characteristics (Tj=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	V	30	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	1.0	1.7	3.0
Static Drain-Source On-Resistance ⁽³⁾	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$	m Ω	—	6	8
		$V_{GS}=4.5V, I_D=10A$		—	8	12

● Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	pF	—	1497	—
Output Capacitance	C_{oss}			—	210	—
Reverse Transfer Capacitance	C_{rss}			—	158	—

● Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=15V, I_D=10A, R_{GEN}=3\Omega$	nS	—	7.1	—
Turn-on Rise Time	t_r		nS	—	8.5	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	26	—
Turn-off fall Time	t_f		nS	—	8	—
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=10A, V_{GS}=10V$	nC	—	30.3	—
Gate-Source Charge	Q_{gs}		nC	—	4.1	—
Gate-Drain Charge	Q_{gd}		nC	—	6.3	—

● Drian-Source Diode Characteristics

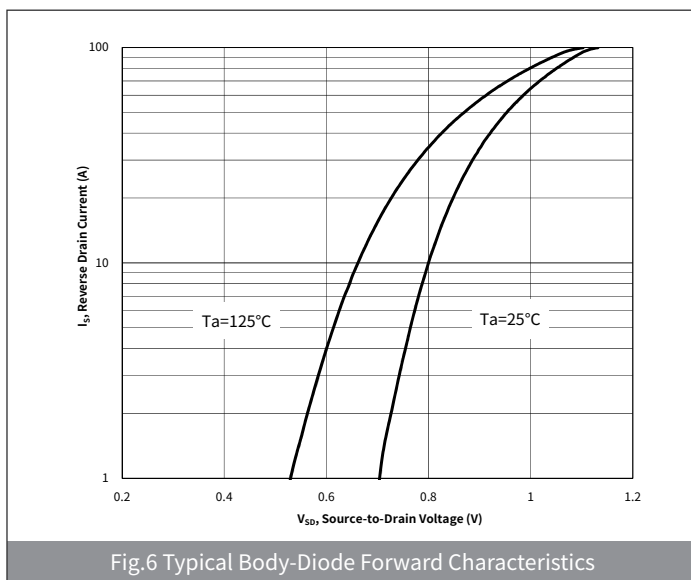
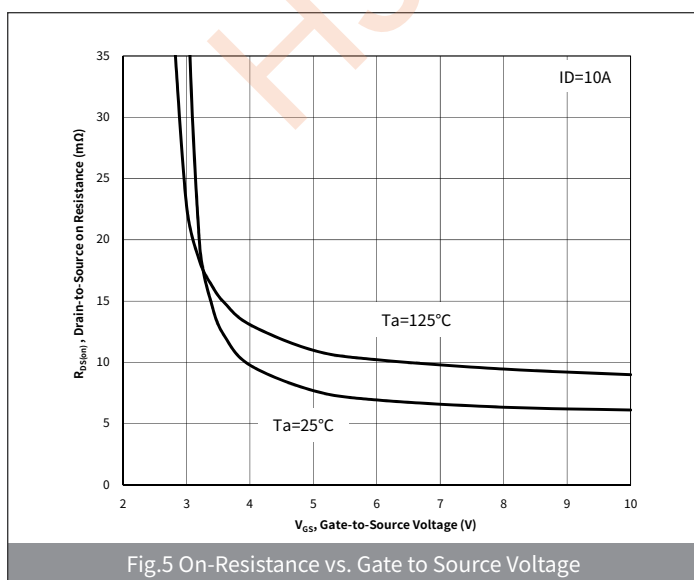
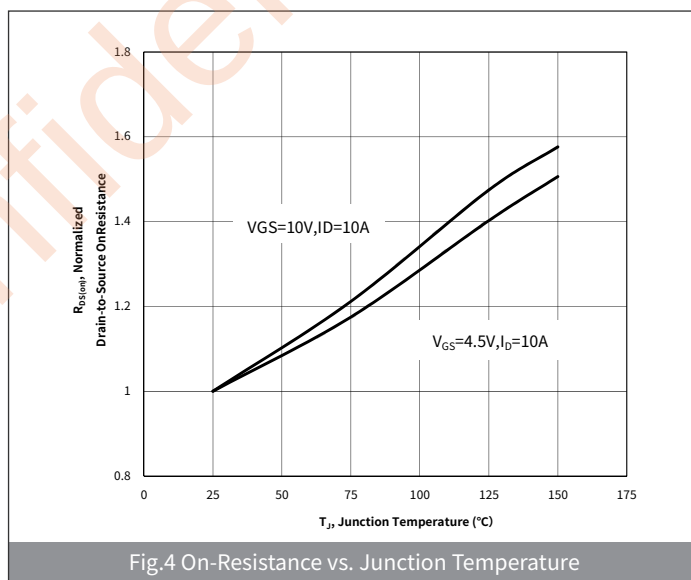
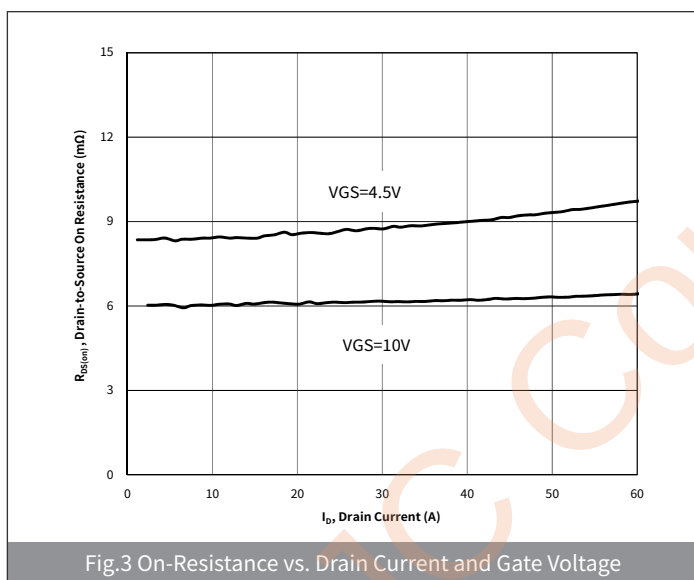
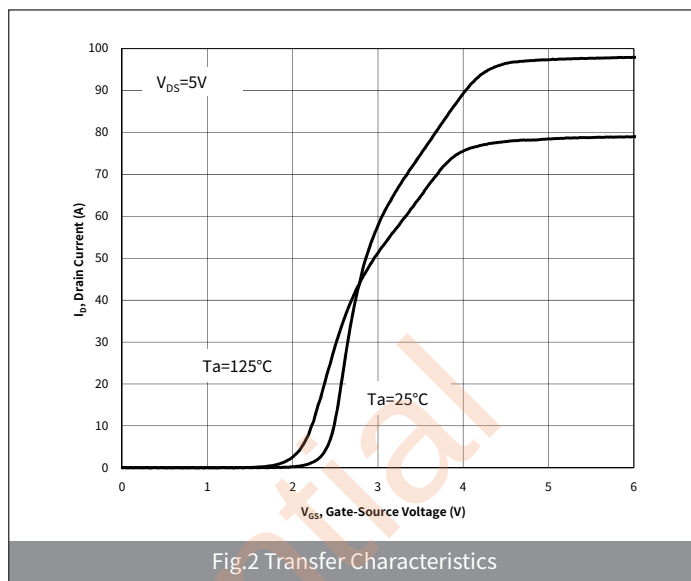
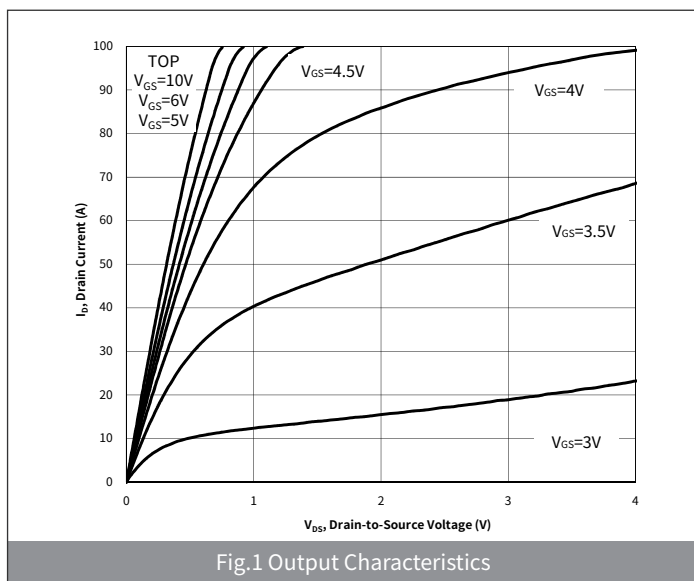
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	15

Note :

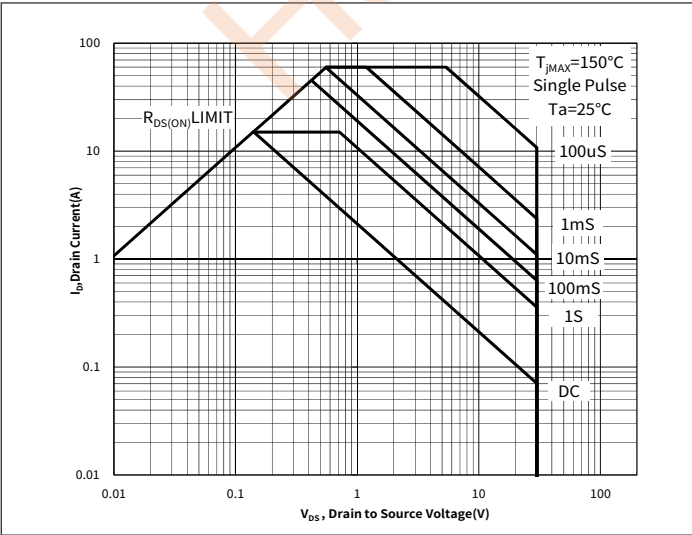
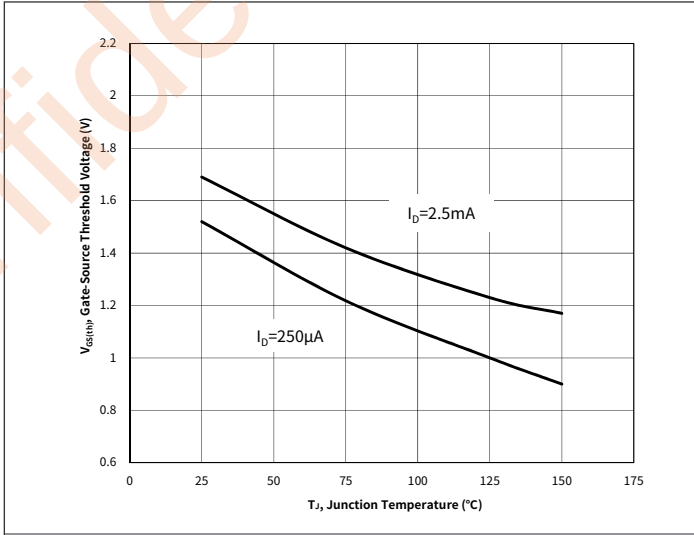
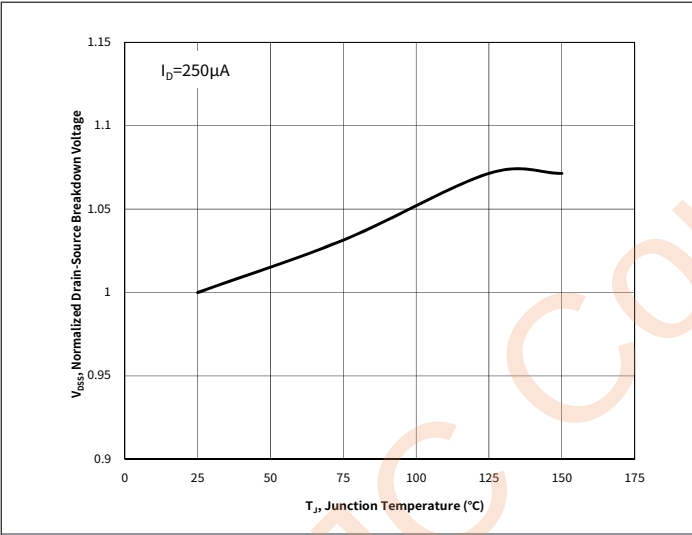
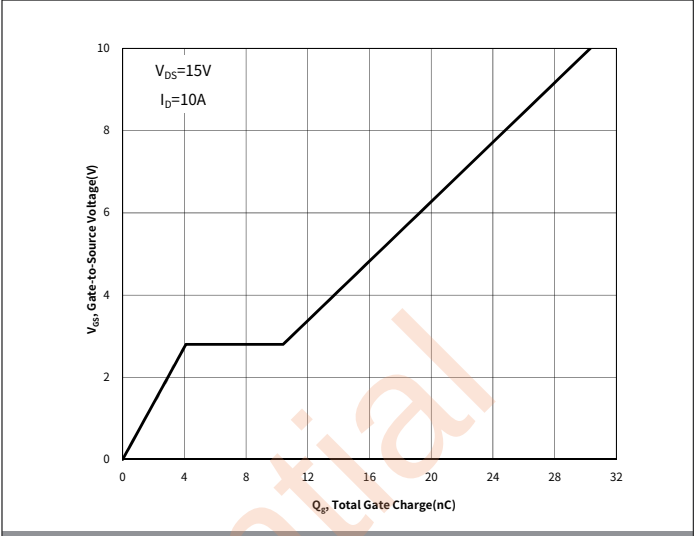
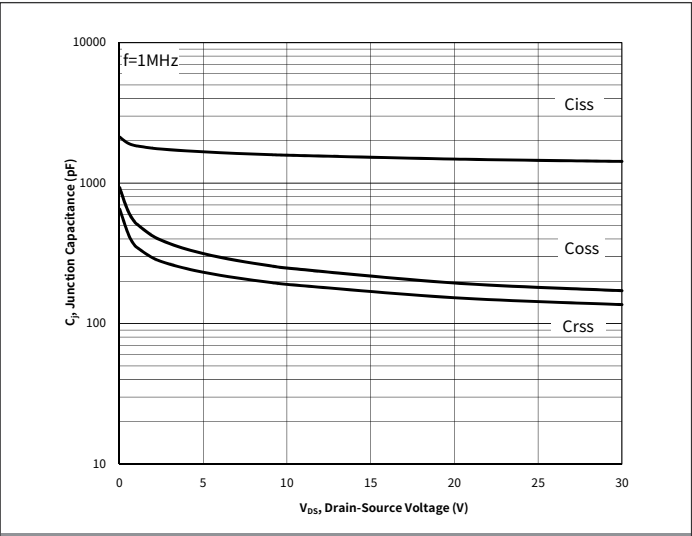
(1) Repetitive Rating: Pulse width limited by maximum junction temperature.

(2) EAS condition : Tj=25°C, VDD=30V, VG=10V, L=0.5mH, IAS=12A, Rg=25 Ω .(3) Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

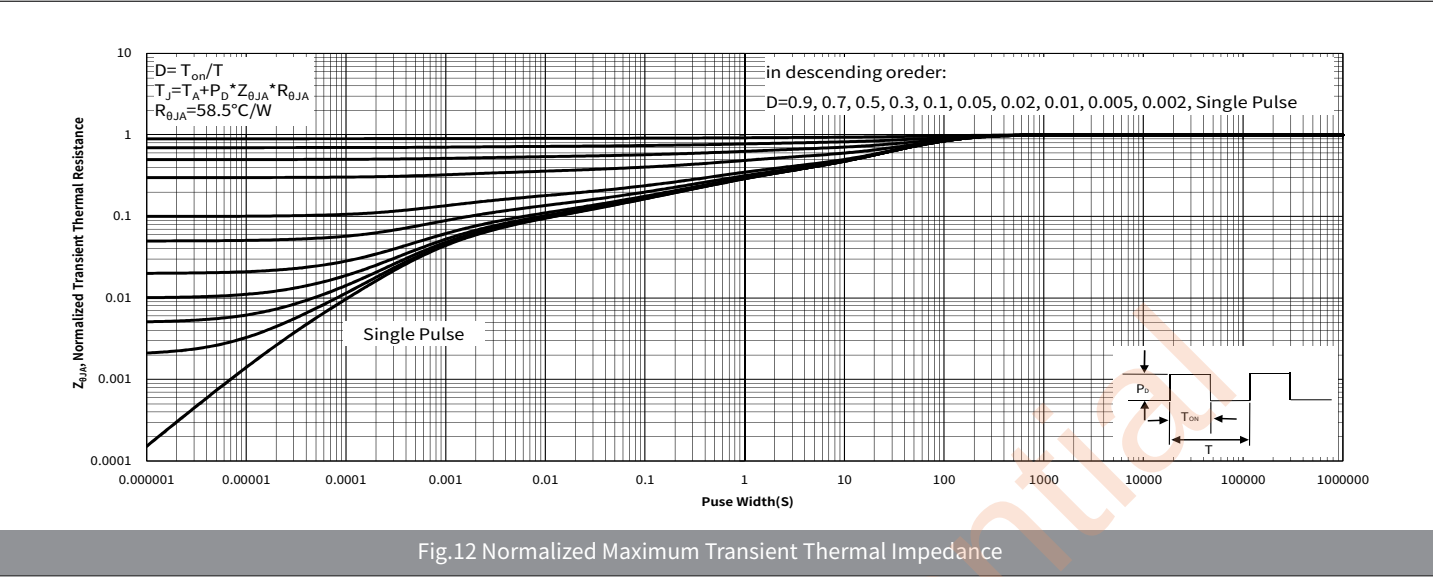
● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



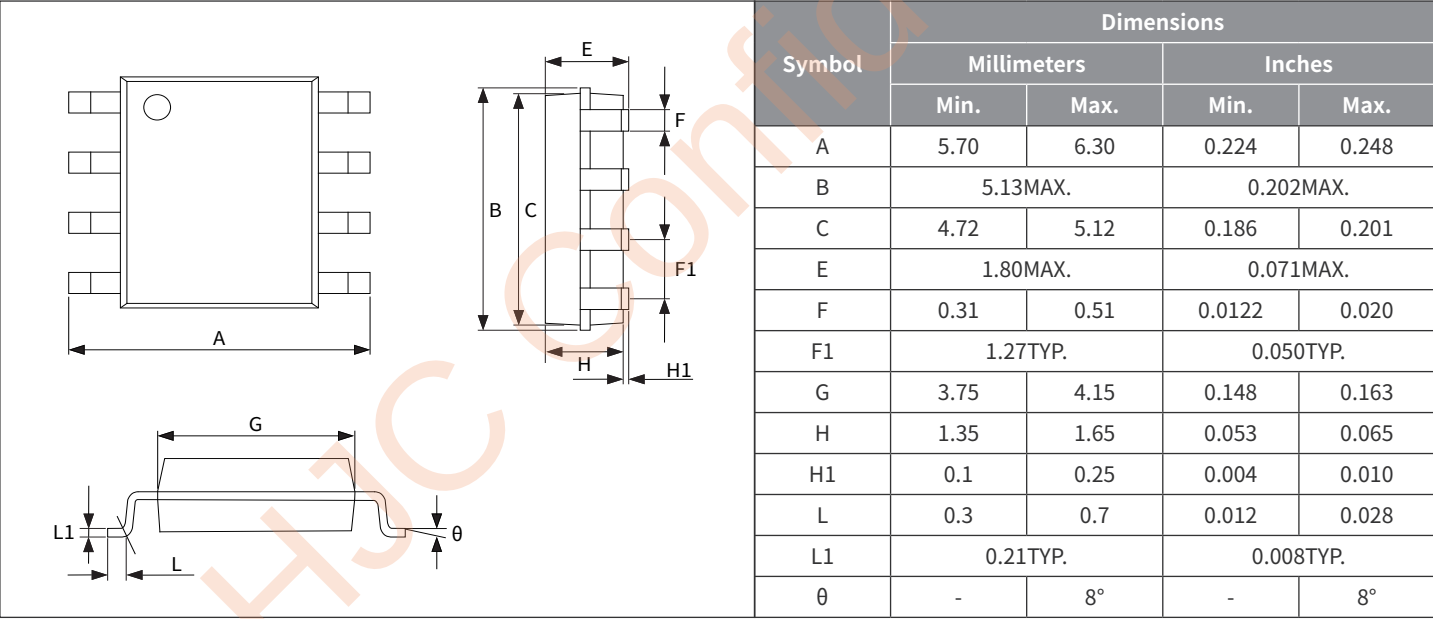
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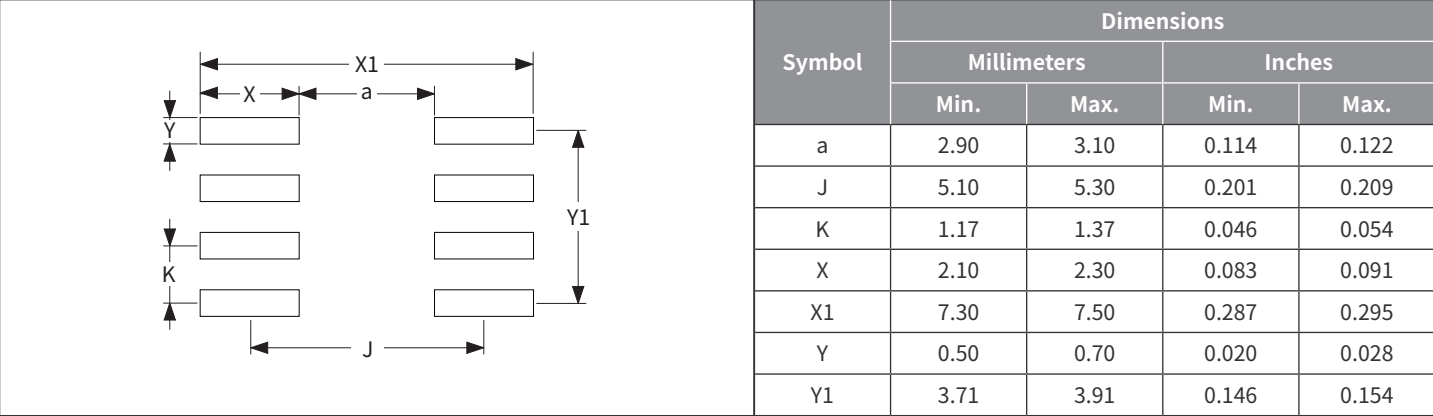
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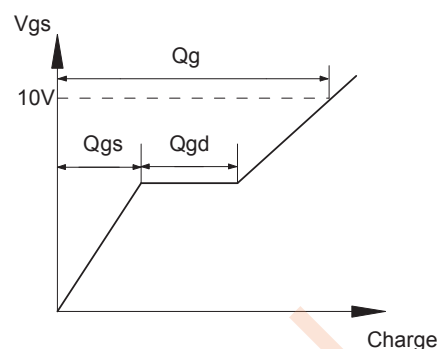
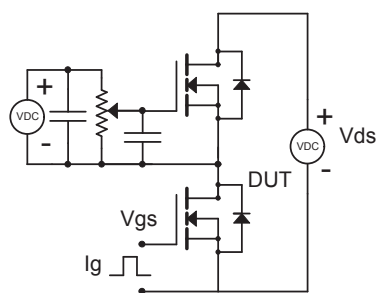
● Package Outline Dimensions (SOP-8)



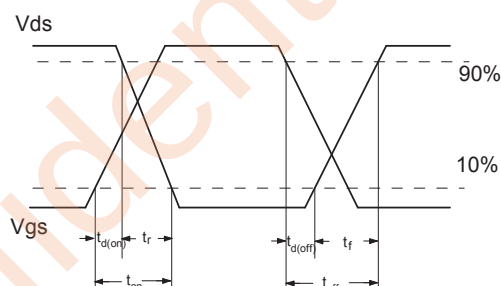
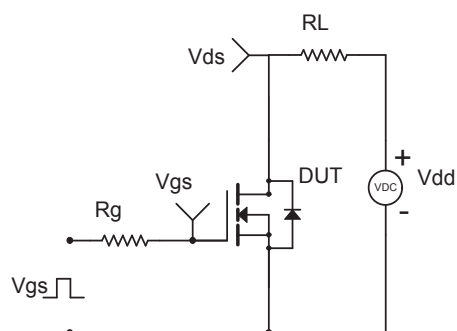
● Suggested Pad Layout



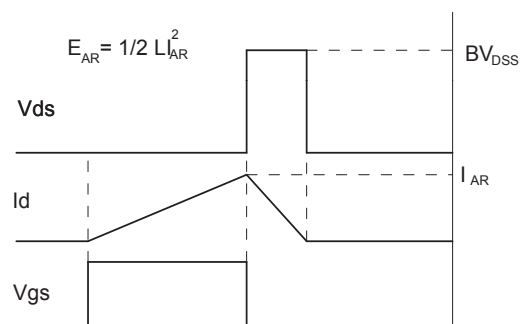
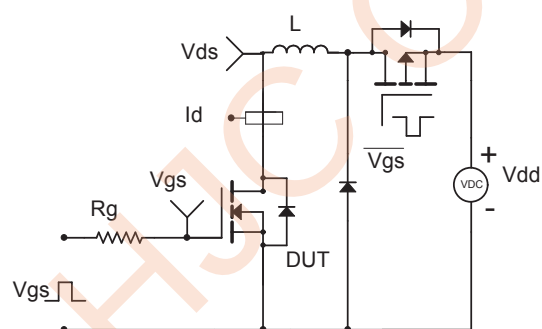
1. Gate Charge Test Circuit & Waveforms



2. Resistive Switching Test Circuit & Waveforms



3. Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



4. Diode Recovery Test Circuit & Waveforms

