

SOP-8 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=-30V$
- $I_D=-10A$
- $R_{DS(on)}@V_{GS}=-10V < 16m\Omega$
- $R_{DS(on)}@V_{GS}=-4.5V < 28m\Omega$
- Low Gate Charge and R_{dson}
- Fast Switching Speedze
- Improved dv/dt capability, high ruggedness

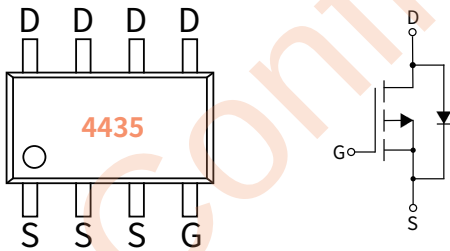
Applications

- Power Switching Application
- 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



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOP-8	R3	0.077	4000	8000	64000	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	-10
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	-40
Total Power Dissipation	P_D	W	2.0
Junction temperature	T_J	°C	150
Storage temperature	T_{stg}	°C	-55 ~+150
Thermal Resistance Junction-to-Ambient ⁽²⁾	$R_{\theta JA}$	°C / W	62.5

Drain-source Voltage
-30 V
Drain Current
-10 Ampere



● 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 ⁽³⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	V	-1.0	-1.6	-2.5
Static Drain-Source On-Resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-8A$	m Ω	—	12	16
		$V_{GS}=-4.5V, I_D=-5A$		—	17	28

● Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	pF	—	1306	—
Output Capacitance	C_{oss}			—	195	—
Reverse Transfer Capacitance	C_{rss}			—	180	—

● Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=-10V, V_{DD}=-15V, I_D=-5A, R_{GEN}=2.5\Omega$	nS	—	10	—
Turn-on Rise Time	t_r		nS	—	14	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	50	—
Turn-off fall Time	t_f		nS	—	20	—
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-5A, V_{GS}=-10V$	nC	—	22	—
Gate-Source Charge	Q_{gs}		nC	—	3	—
Gate-Drain Charge	Q_{gd}		nC	—	6	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage ⁽³⁾	V_{SD}	$I_S=-10A, V_{GS}=0V$	V	—	—	-1.2
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	-10

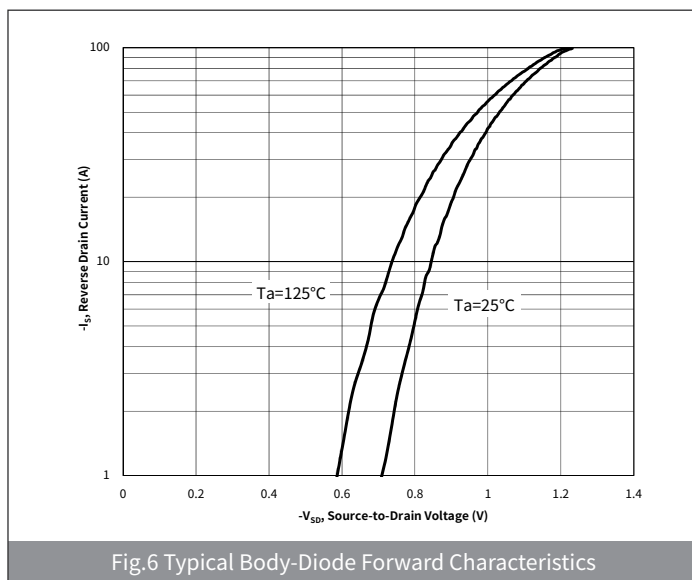
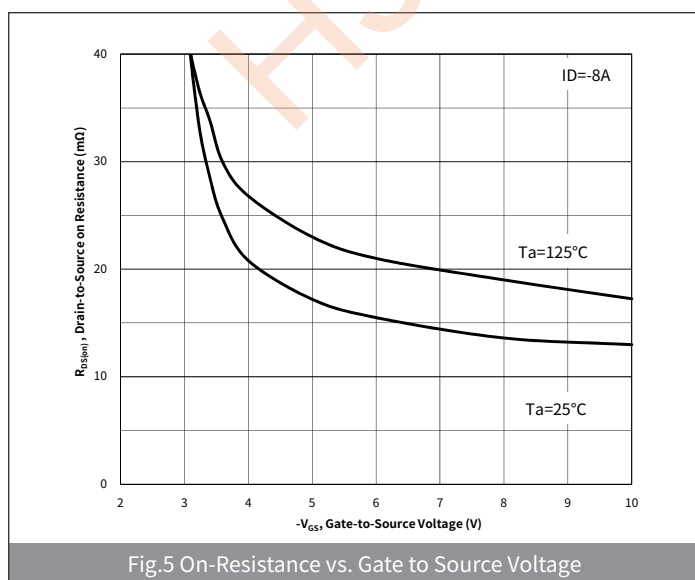
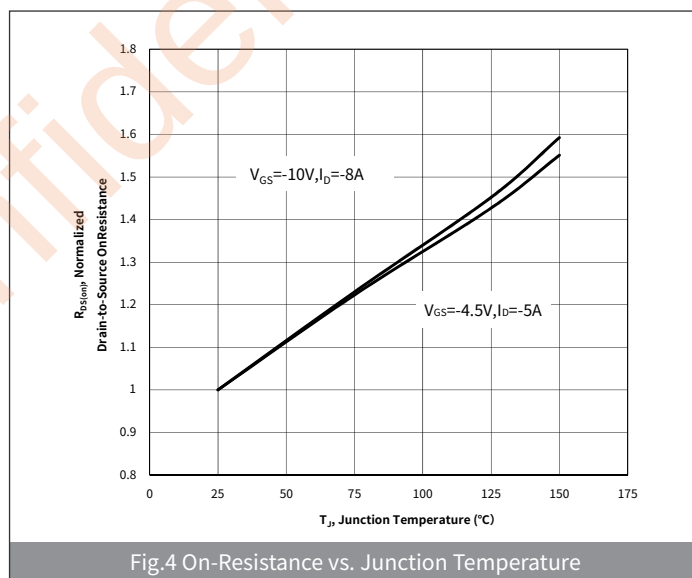
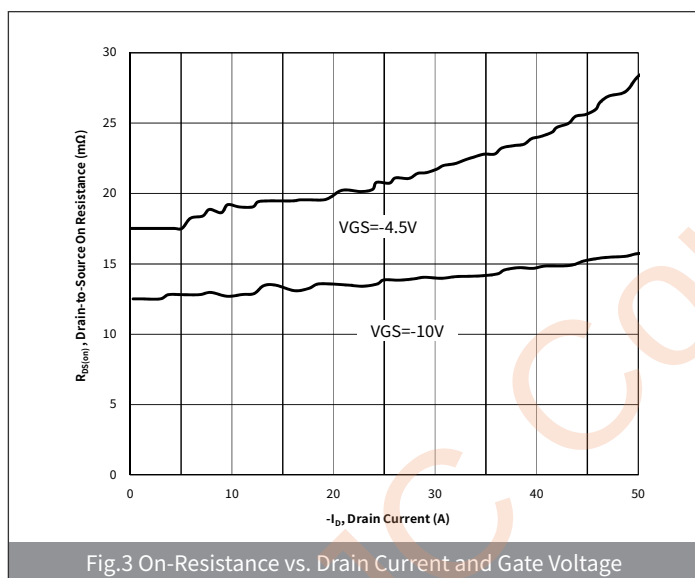
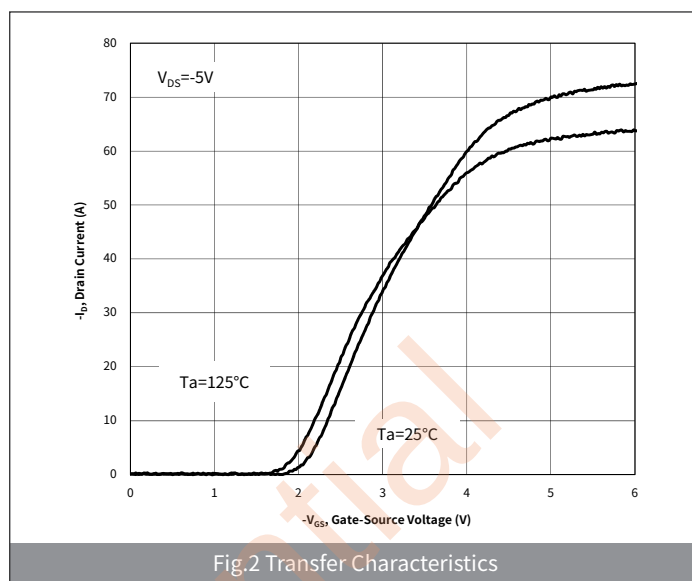
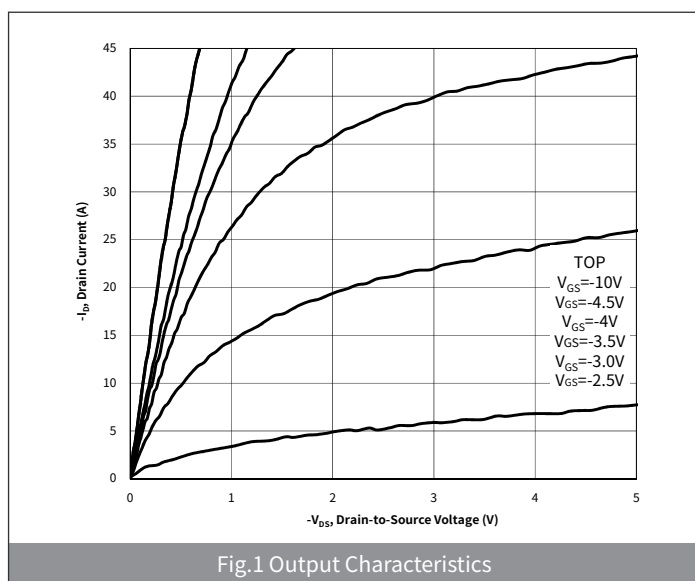
Note :

(1) Repetitive rating: pulse width limited by maximum junction temperature.

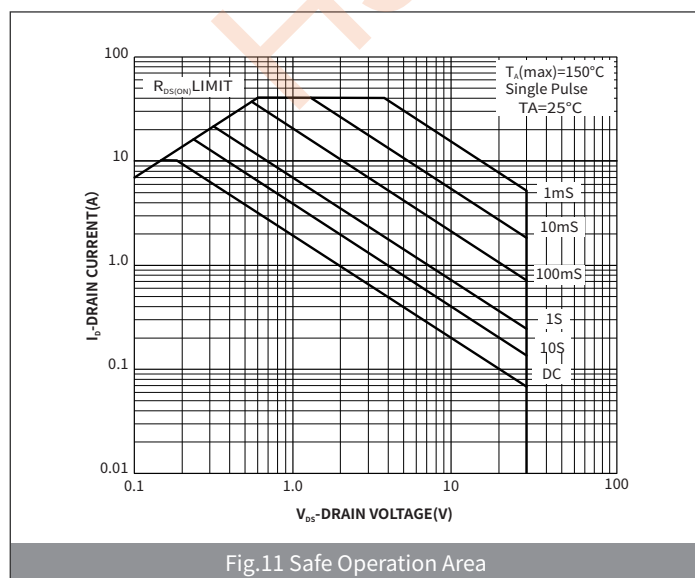
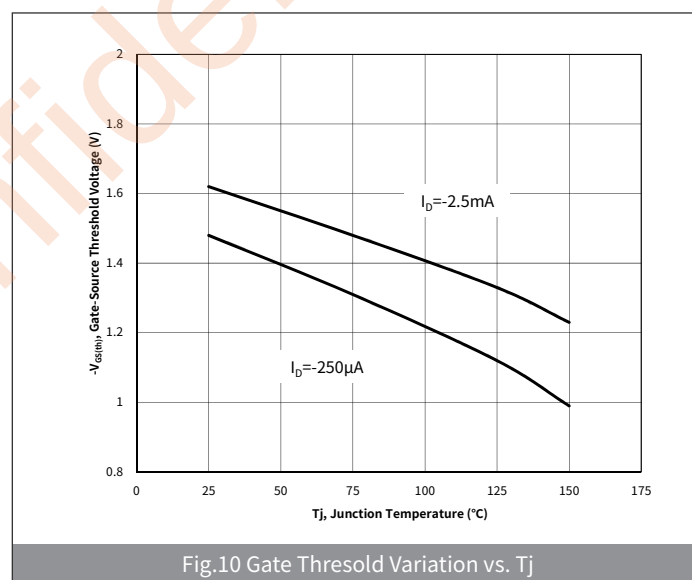
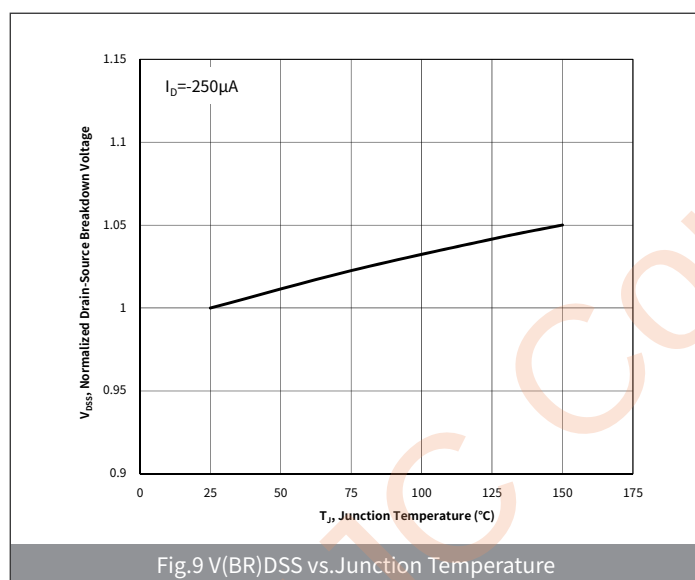
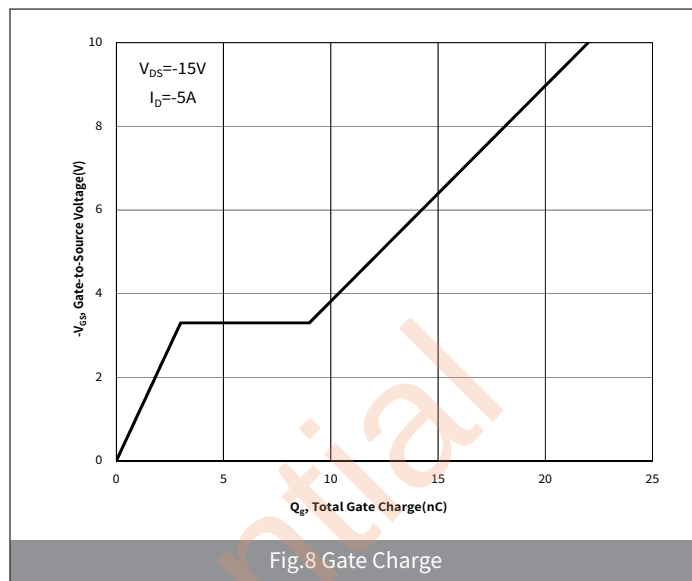
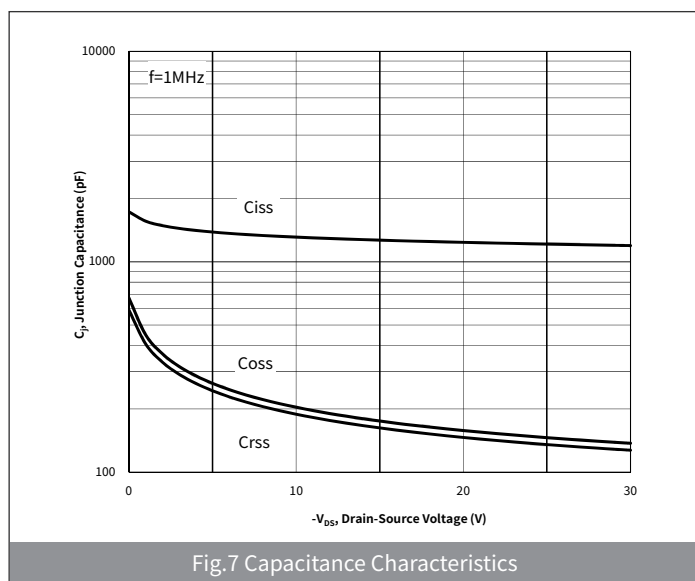
(2) Surface Mounted on FR4 Board, $t \leq 10$ sec.

(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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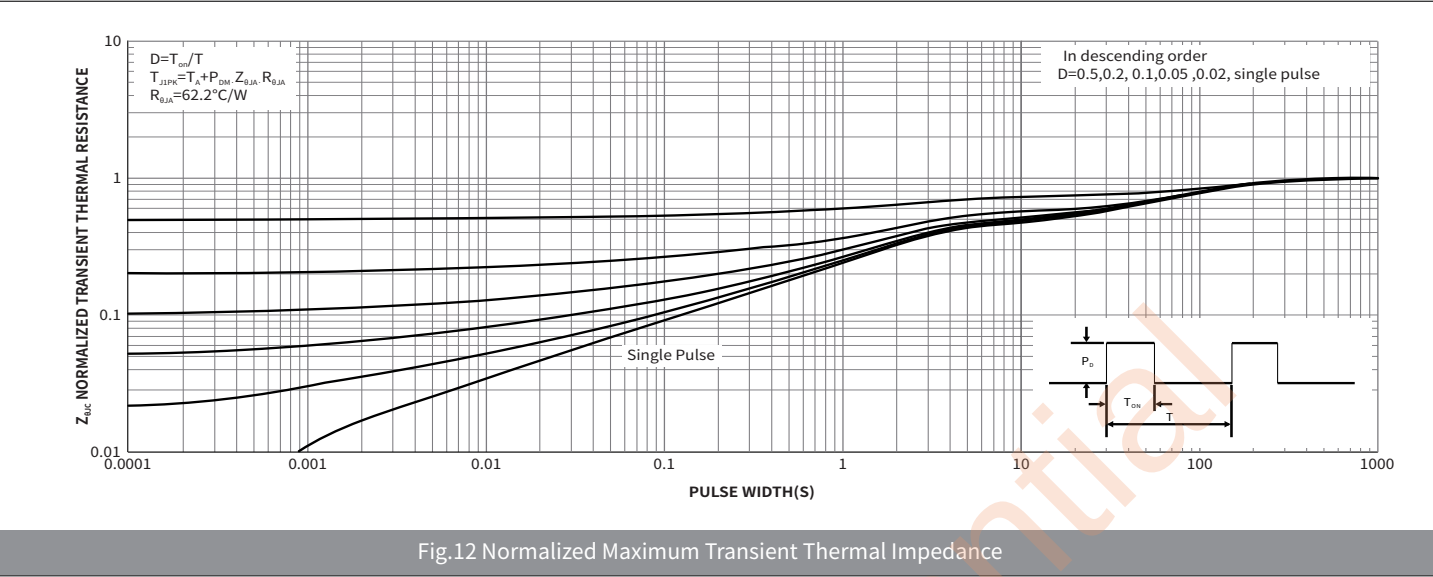
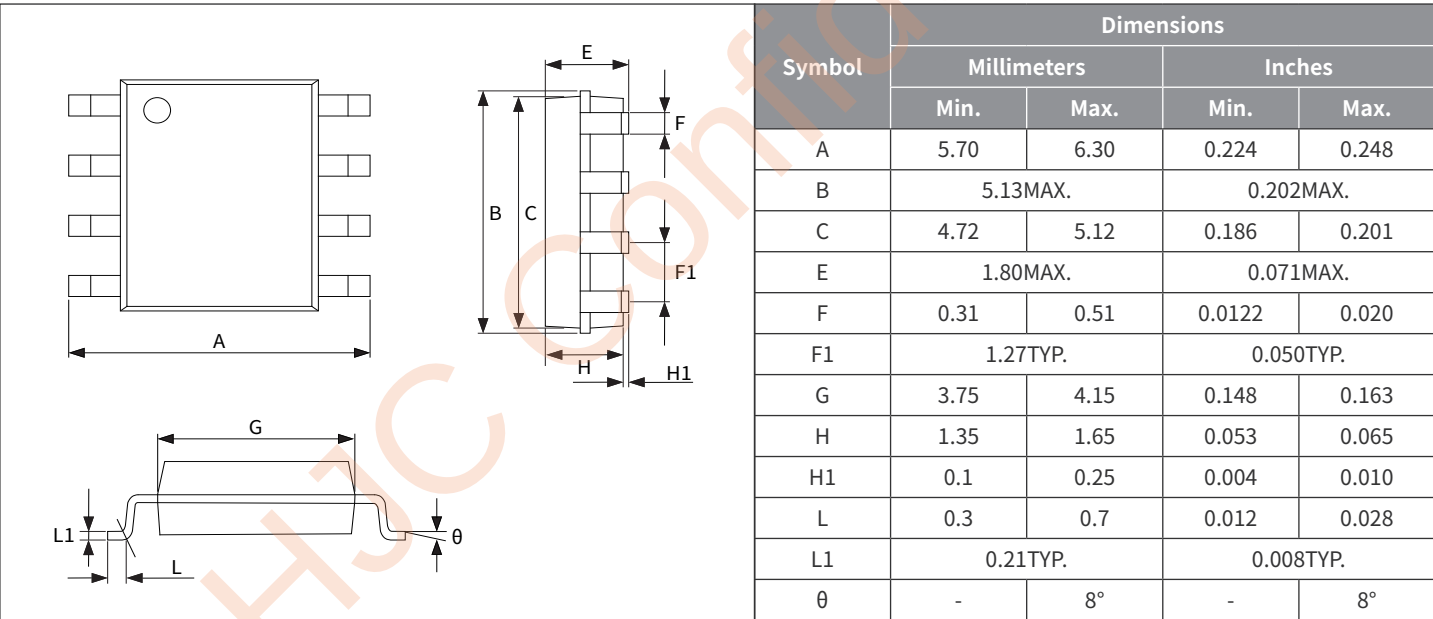
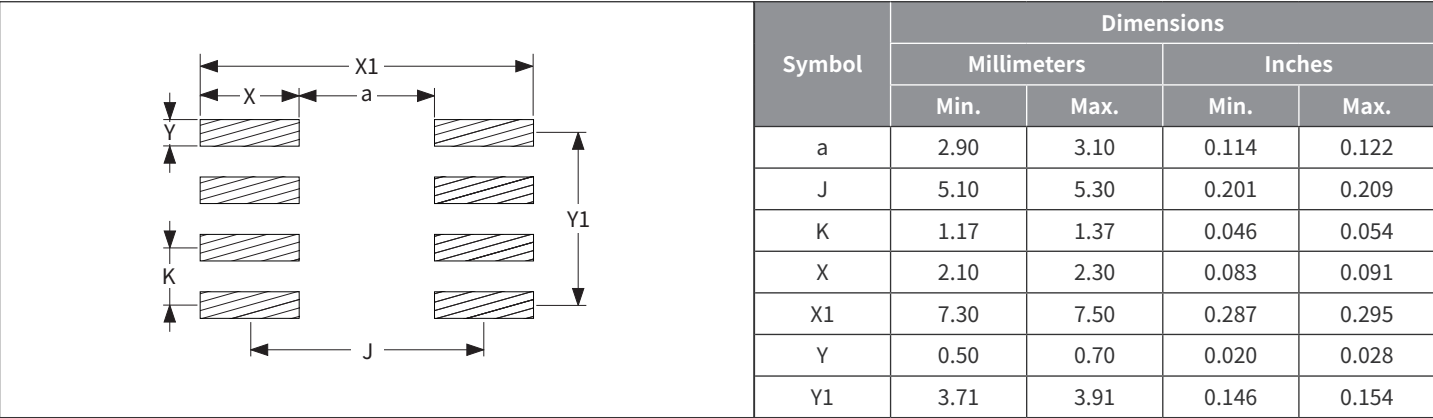


Fig.12 Normalized Maximum Transient Thermal Impedance

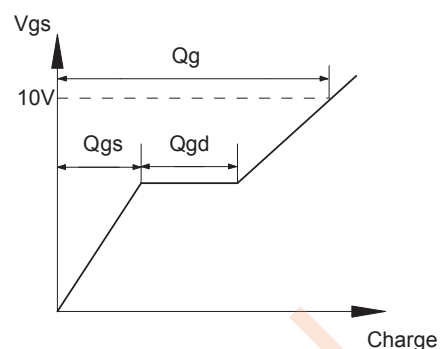
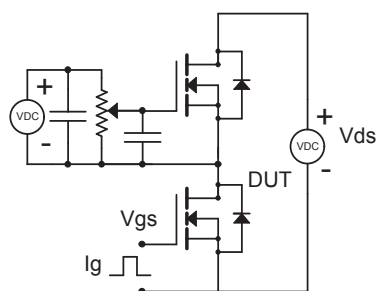
Package Outline Dimensions (SOP-8)



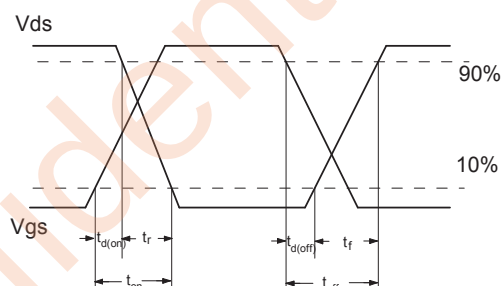
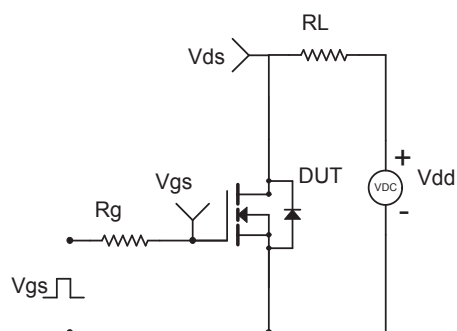
Suggested Pad Layout



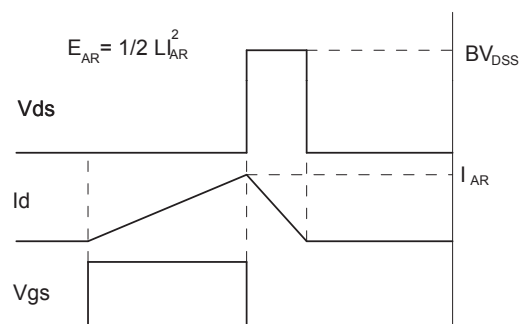
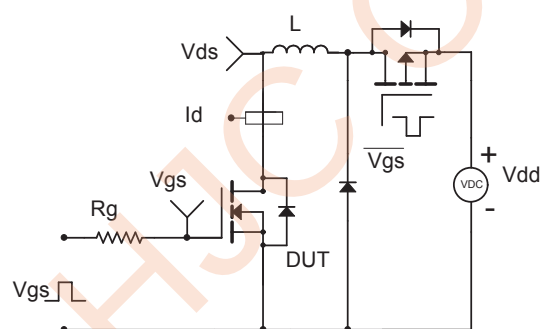
1. Gate Charge Test Circuit & Waveforms



2. Resistive Switching Test Circuit & Waveforms



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



4. Diode Recovery Test Circuit & Waveforms

