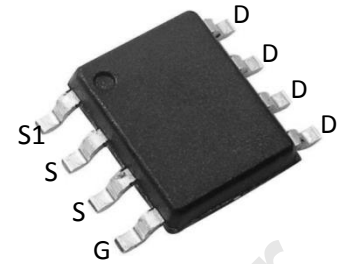


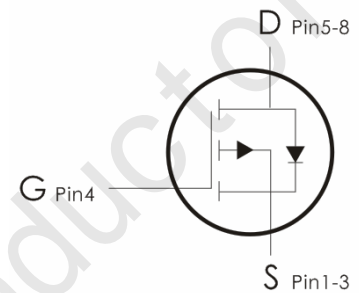
### Description:

This P-Channel MOSFET uses advanced trench technology and design to provide excellent  $R_{DS(on)}$  with low gate charge. It can be used in a wide variety of applications.



### Features:

- 1)  $V_{DS}=-30V, I_D=-10A, R_{DS(ON)}<20m\ \Omega @V_{GS}=-10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra  $R_{DS(ON)}$ .
- 5) Excellent package for good heat dissipation.



### Absolute Maximum Ratings: ( $T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	-30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current- $T_C=25^\circ C$	-10	A
	Continuous Drain Current- $T_C=100^\circ C$	-5.1	
	Pulsed Drain Current <sup>1</sup>	-32	
$E_{AS}$	Single Pulse Avalanche Energy	---	mJ
$P_D$	Power Dissipation( $T_C=25^\circ C$ )	2.1	W
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

### Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	---	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	60	

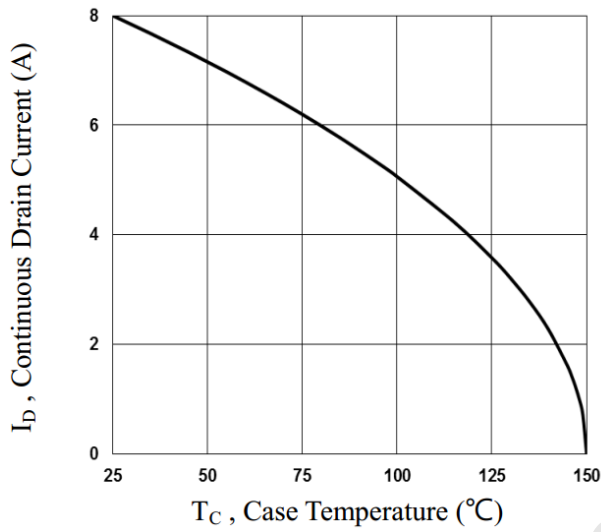
**Electrical Characteristics:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\ \mu A$	-30	---	---	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\ \mu A$	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Drain-Source On Resistance <sup>2</sup>	$V_{GS}=-10V, I_D=-8A$	---	16.5	20	m $\Omega$
		$V_{GS}=-4.5V, I_D=-5A$	---	25.6	32	
$G_{FS}$	Forward Transconductance	$V_{DS}=-10V, I_D=-3A$	---	6.8	---	S
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	---	1250	1820	pF
$C_{oss}$	Output Capacitance		---	160	235	
$C_{rss}$	Reverse Transfer Capacitance		---	90	130	
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On Delay Time <sup>2,3</sup>	$V_{DD}=-15V, V_{GS}=-10V, R_G=6, I_D=-1A$	---	5.8	11	ns
$t_r$	Rise Time <sup>2,3</sup>		---	18.8	36	ns
$t_{d(off)}$	Turn-Off Delay Time <sup>2,3</sup>		---	46.9	89	ns
$t_f$	Fall Time <sup>2,3</sup>		---	12.3	23	ns
$Q_g$	Total Gate Charge <sup>2,3</sup>	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-5A$	---	11	17	nC
$Q_{gs}$	Gate-Source Charge <sup>2,3</sup>		---	3.4	6	nC
$Q_{gd}$	Gate-Drain "Miller" Charge <sup>2,3</sup>		---	4.2	8	nC
<b>Drain-Source Diode Characteristics</b>						
$V_{SD}$	Source-Drain Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=-1A$	---	---	-1	V

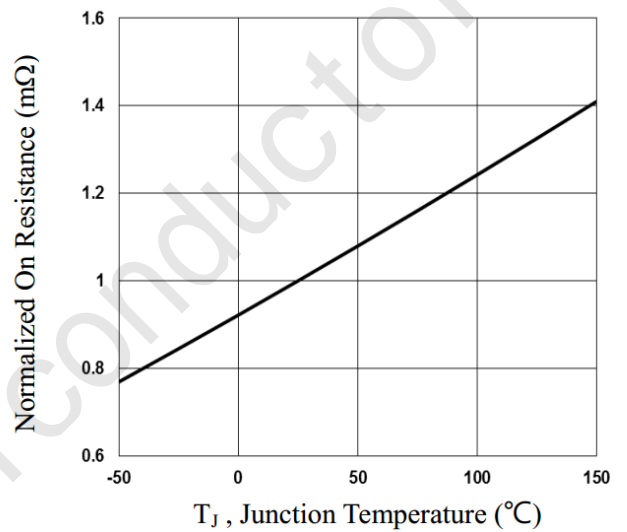
**Notes:**

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width  $\cong$  300us , duty cycle  $\cong$  2%.
3. Essentially independent of operating temperature.

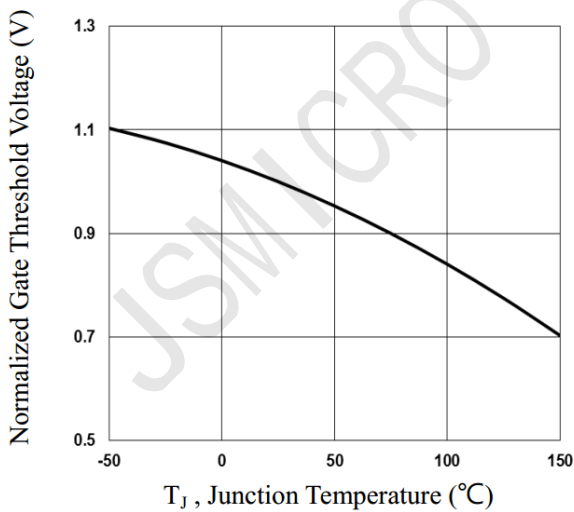
**Typical Characteristics:** ( $T_c=25^\circ\text{C}$  unless otherwise noted)



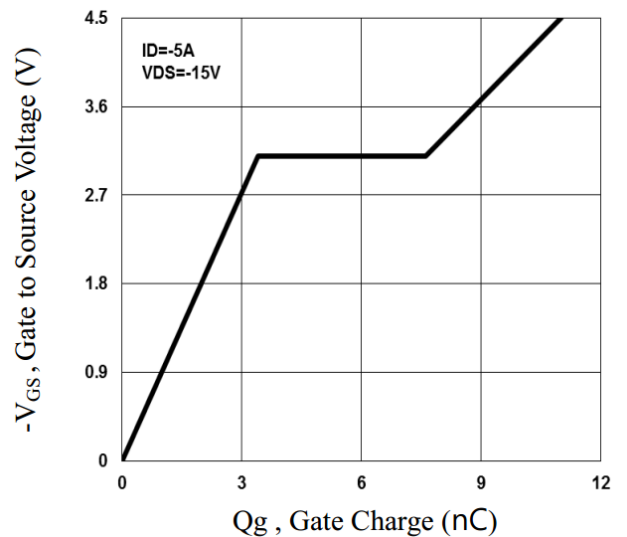
**Fig.1 Continuous Drain Current vs.  $T_C$**



**Fig.2 Normalized  $R_{\text{DS(on)}}$  vs.  $T_J$**



**Fig.3 Normalized  $V_{\text{th}}$  vs.  $T_J$**



**Fig.4 Gate Charge Waveform**

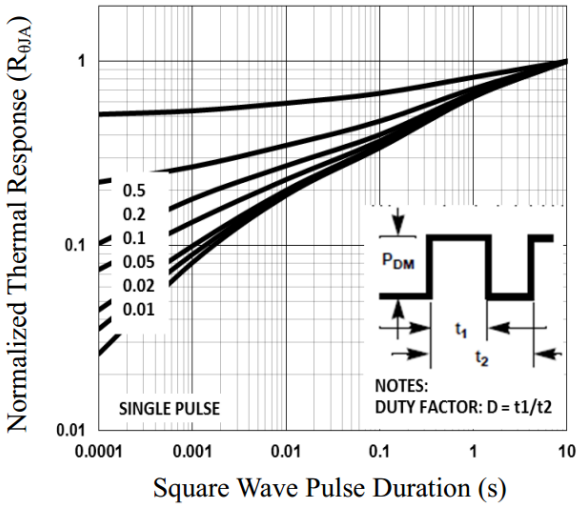


Fig.5 Normalized Transient Impedance

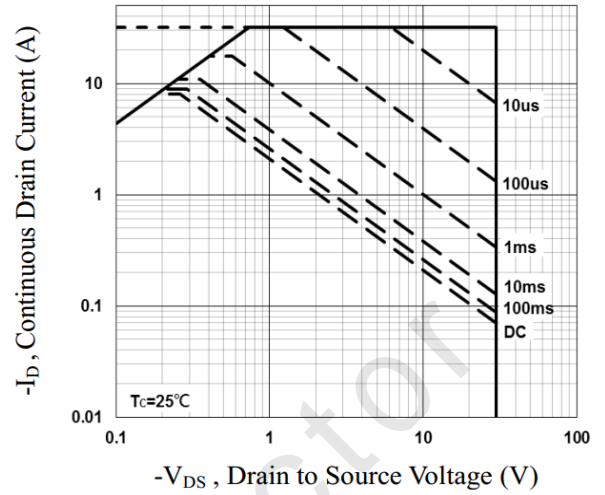


Fig.6 Maximum Safe Operation Area

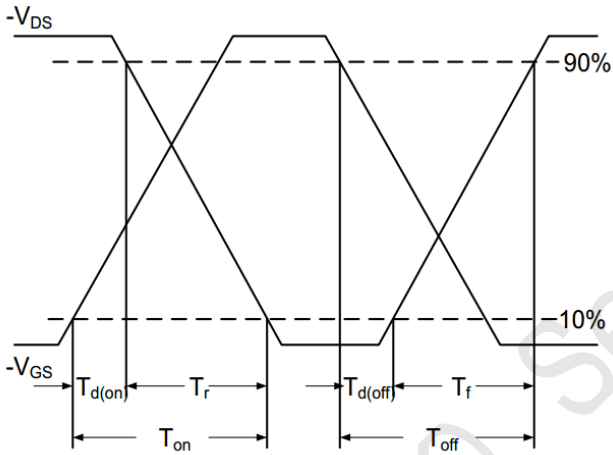


Fig.7 Switching Time Waveform

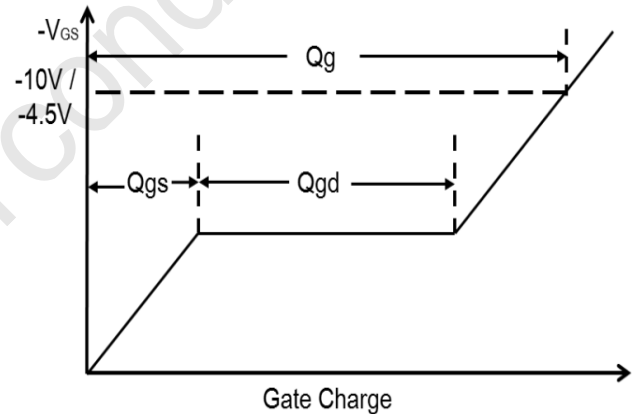
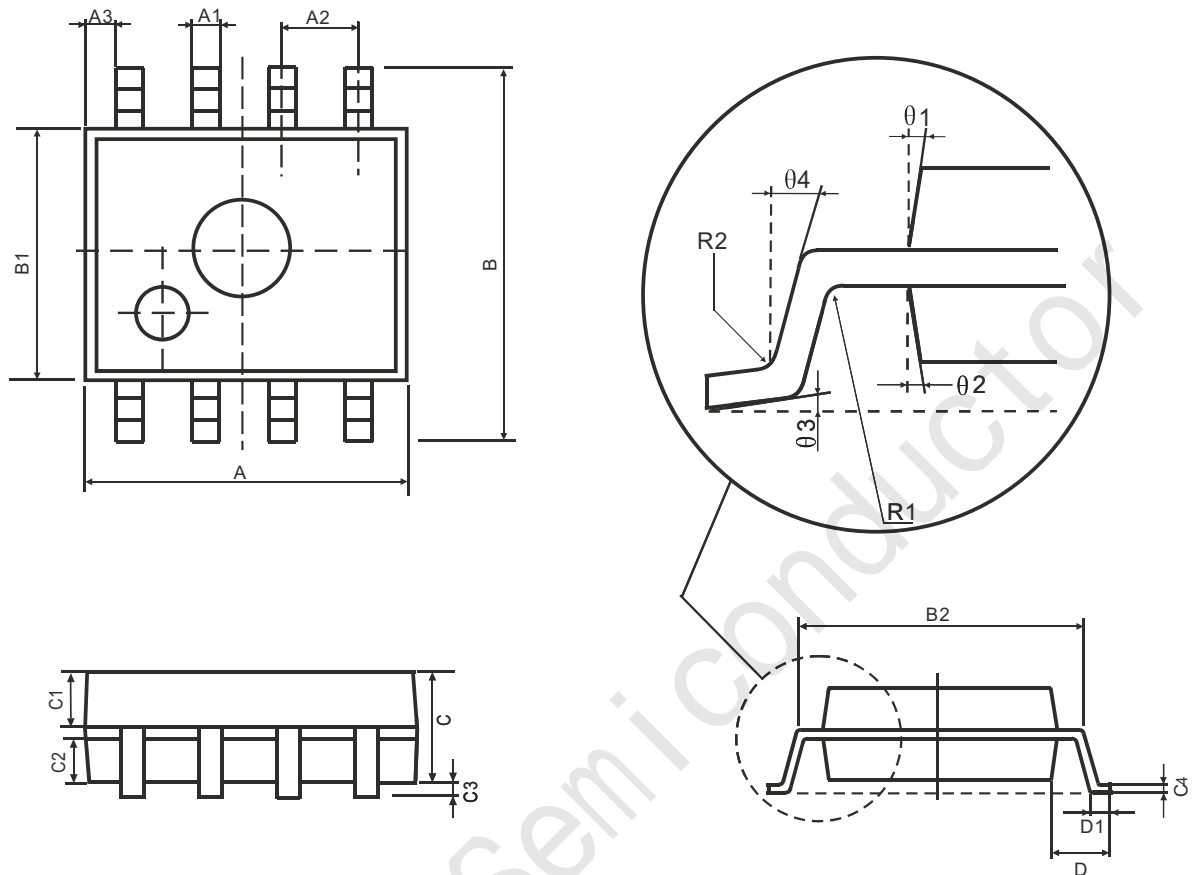


Fig.8 Gate Charge Waveform

封装尺寸  
**SOP8**


符号	尺寸(mm)		符号	尺寸(mm)	
	最小值	最大值		最小值	最大值
A	4.95	5.15	C3	0.05	0.20
A1	0.37	0.47	C4	0.20(典型值)	
A2	1.27(典型值)		D	1.05(典型值)	
A3	0.41(典型值)		D1	0.40	0.60
B	5.80	6.20	R1	0.07(典型值)	
B1	3.80	4.00	R2	0.07(典型值)	
B2	5.0(典型值)		θ1	17°(典型值)	
C	1.30	1.50	θ2	13°(典型值)	
C1	0.55	0.65	θ3	4°(典型值)	
C2	0.55	0.65	θ4	12°(典型值)	