

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_b=250\mu A$	40	---	---	V
BV_{DSS} Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C , $I_b=1\text{mA}$	---	0.03	---	$V/^{\circ}\text{C}$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	1	μA
		$V_{DS}=32V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	---	---	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=8A$	---	7	9	m Ω
		$V_{GS}=4.5V, I_D=4A$	---	9.5	13	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.8	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		---	-5	---	mV/ $^{\circ}\text{C}$
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=10A$	---	13	---	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=20V, V_{GS}=4.5V, I_b=8A$	---	12.2	24	nC
Gate-Source Charge ^{2,3}	Q_{gs}		---	3.3	7	
Gate-Drain Charge ^{2,3}	Q_{gd}		---	6.7	13	
Turn-On Delay Time ^{2,3}	$T_{d(on)}$	$V_{DD}=15V, V_{GS}=10V, R_G=3.3\Omega, I_b=1A$	---	13.2	25	ns
Rise Time ^{2,3}	T_r		---	2.2	5	
Turn-Off Delay Time ^{2,3}	$T_{d(off)}$		---	72	130	
Fall Time ^{2,3}	T_f		---	4.5	10	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, F=1\text{MHz}$	---	1220	2200	pF
Output Capacitance	C_{oss}		---	130	250	
Reverse Transfer Capacitance	C_{rss}		---	55	110	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	2.2	---	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	15	A
Pulsed Source Current	I_{SM}		---	---	30	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}\text{C}$	---	---	1	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_S=1A,$	---	17	---	nS
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu S, T_J=25^{\circ}\text{C}$	---	2.8	---	nC

Note:

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

Typical Electrical and Thermal Characteristic Curves

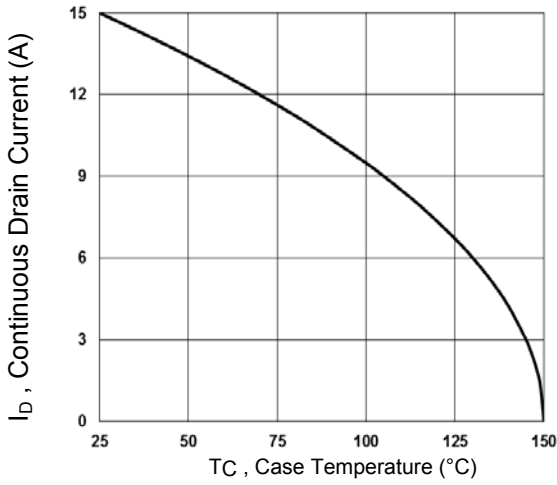


Fig.1 Continuous Drain Current vs. Tc

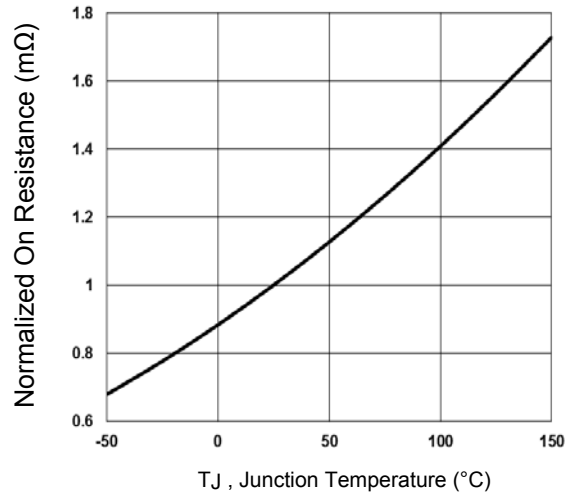


Fig.2 Normalized $R_{DS(ON)}$ vs. Tj

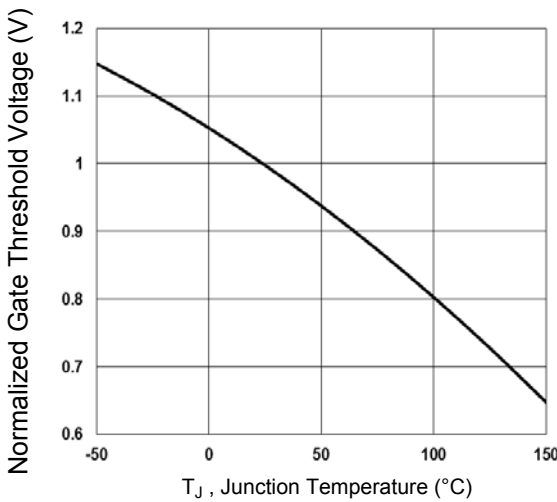


Fig.3 Normalized V_{th} vs. Tj

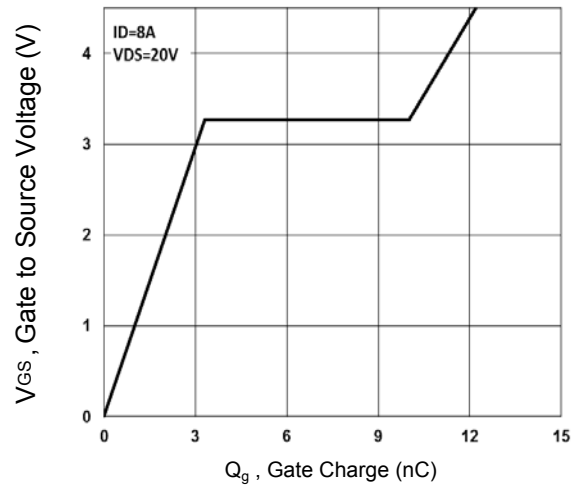


Fig.4 Gate Charge Waveform

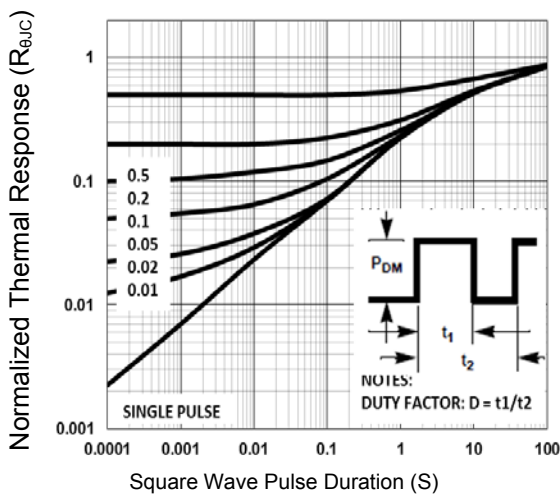


Fig.5 Normalized Transient Impedance

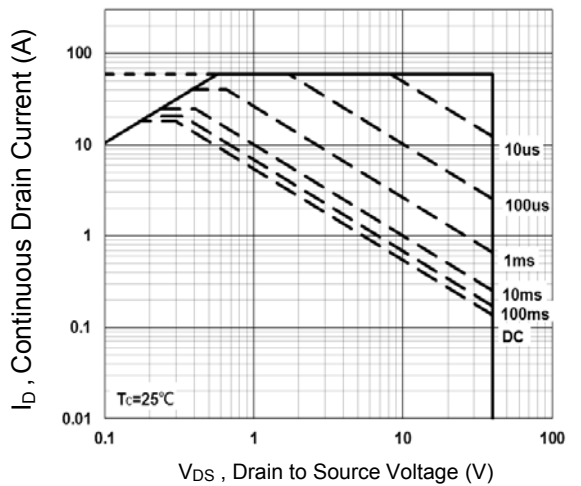


Fig.6 Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

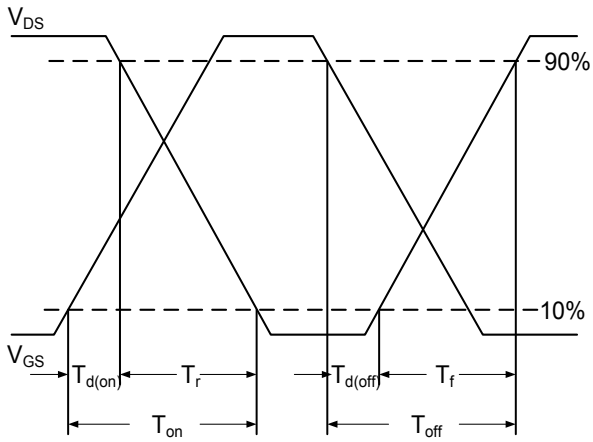


Fig.7 Switching Time Waveform

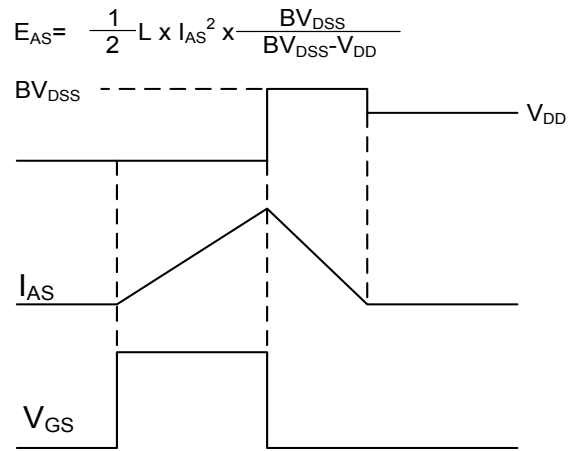
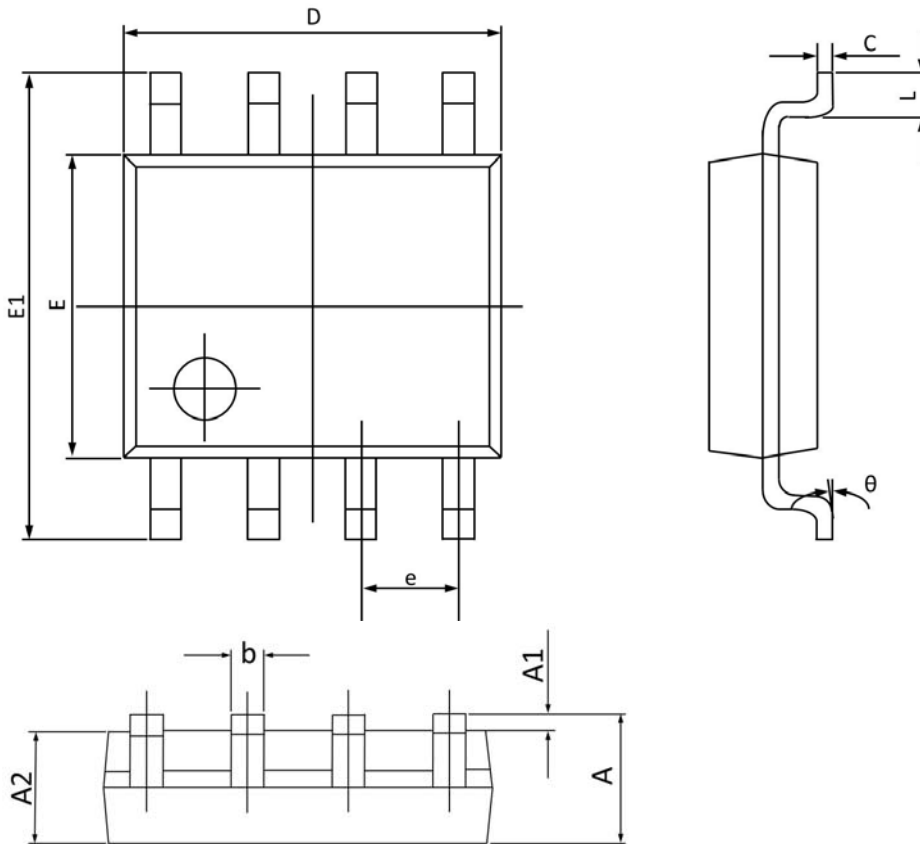


Fig.8 E_{AS} Waveform

Package Outline Dimensions

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.750	1.350	0.069	0.053
A1	0.250	0.100	0.010	0.004
A2	1.500	1.300	0.059	0.051
b	0.490	0.350	0.019	0.014
C	0.260	0.190	0.010	0.007
D	5.100	4.700	0.201	0.185
E	4.100	3.700	0.161	0.146
E1	6.200	5.800	0.244	0.228
e	1.27BSC		0.05BSC	
L	0.900	0.400	0.035	0.016
θ	8°	0°	8°	0°