

### GENERAL FEATURES

- $V_{DS} = -30V$   $I_D = -60 A$
- $R_{DS(ON)} < 11 m\Omega @ V_{GS}=10V$

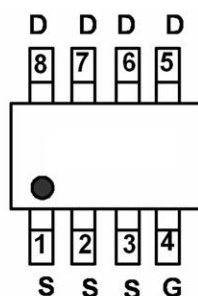
### Application

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

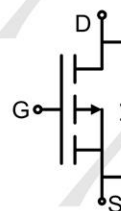
### Package and Pin Configuration



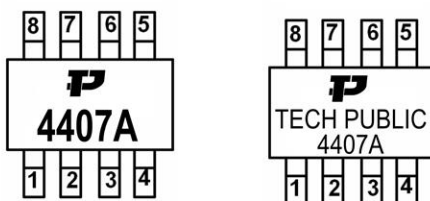
SOP-8 top view



### Circuit diagram



### Marking:



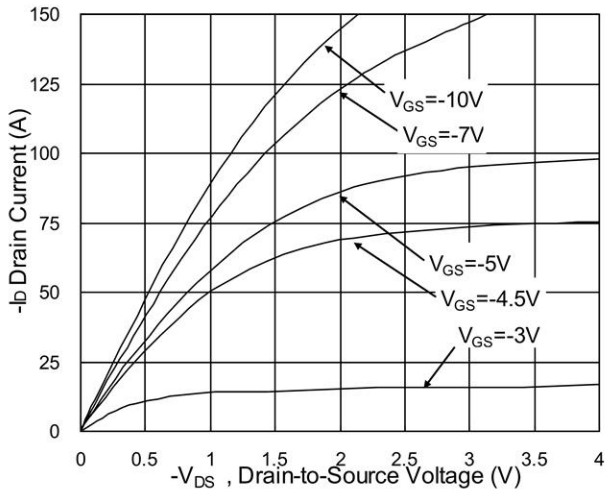
### Absolute Maximum Ratings ( $T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating		Units
		10s	Steady State	
$V_{DS}$	Drain-Source Voltage	-30		V
$V_{GS}$	Gate-Source Voltage	$\pm 20$		V
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-15		A
$I_D @ T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-12		A
$I_D @ T_A=25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-14.3	-9	A
$I_D @ T_A=70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V^1$	-11.4	-7.2	A
IDM	Pulsed Drain Current <sup>2</sup>	-130		A
EAS	Single Pulse Avalanche Energy <sup>3</sup>	125		mJ
IAS	Avalanche Current	-50		A
$P_D @ T_C=25^\circ C$	Total Power Dissipation <sup>4</sup>	37		W
$P_D @ T_A=25^\circ C$	Total Power Dissipation <sup>4</sup>	4.2	1.67	W
TSTG	Storage Temperature Range	-55 to 150		$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150		$^\circ C$

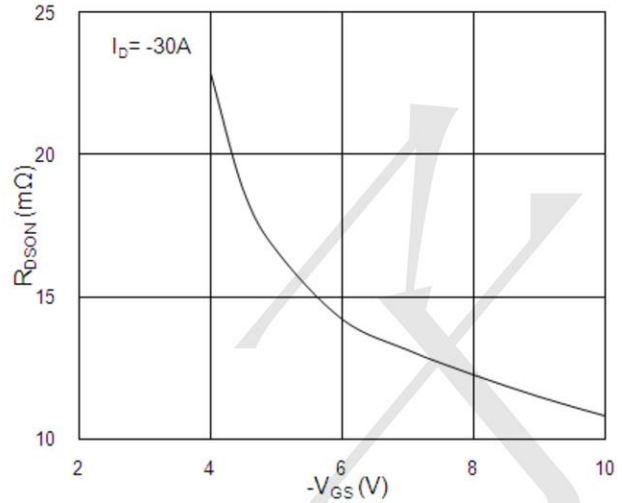
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-30	---	---	V
ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	BVDSS Temperature Coefficient	Reference to 25°C, I <sub>D</sub> =-1mA	---	-0.0232	---	V/°C
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-10A	---	---	11	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-8A	---	---	20	
V <sub>GS(th)</sub>	Gate Threshold Voltage		-1.2	---	-2.5	V
ΔV <sub>GS(th)</sub>	V <sub>GS(th)</sub> Temperature Coefficient	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250μA	---	4.6	---	mV/°C
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	-1	μA
		V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C	---	---	-5	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-30A	---	30	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f=1MHz	---	9	---	Ω
Q <sub>g</sub>	Total Gate Charge (-4.5V)		---	22	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-15A	---	8.7	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	7.2	---	
T <sub>d(on)</sub>	Turn-On Delay Time		---	8	---	ns
T <sub>r</sub>	Rise Time	V <sub>DD</sub> =-15V, V <sub>GS</sub> =-10V, R <sub>G</sub> =3.3	---	73.7	---	
T <sub>d(off)</sub>	Turn-Off Delay Time	I <sub>D</sub> =-15A	---	61.8	---	
T <sub>f</sub>	Fall Time		---	24.4	---	
C <sub>iss</sub>	Input Capacitance		---	2215	---	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1MHz	---	310	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	237	---	
I <sub>S</sub>	Continuous Source Current <sup>1,5</sup>		---	---	-42	A
I <sub>SM</sub>	Pulsed Source Current <sup>2,5</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	-130	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1A, T <sub>J</sub> =25°C	---	---	-1	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =-15A, dI/dt=100A/μs, T <sub>J</sub> =25°C	---	19	---	nS
Q <sub>rr</sub>	Reverse Recovery Charge		---	9	---	nC

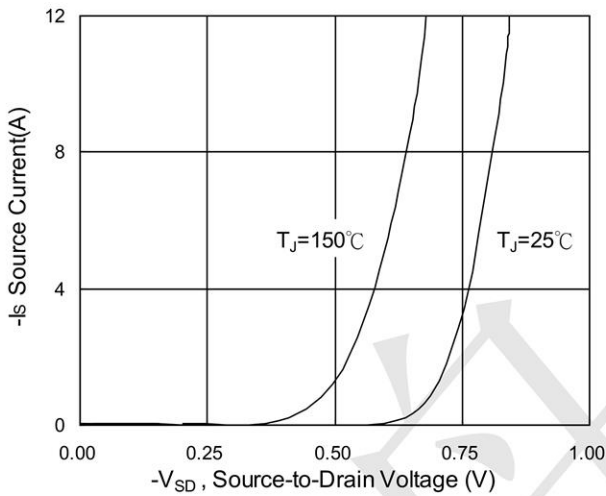
**Typical Electrical and Thermal Characteristics**



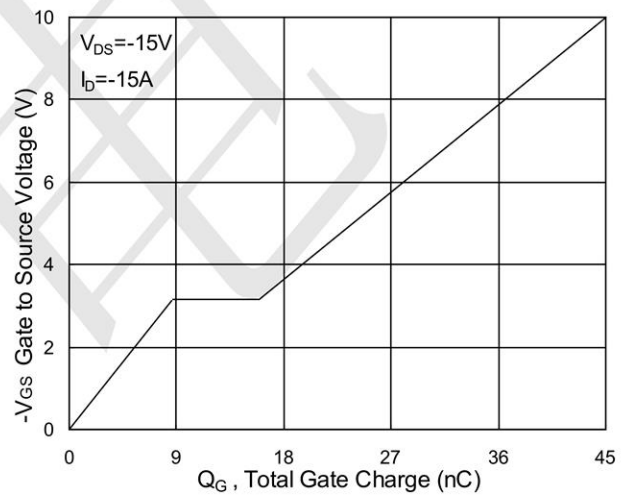
**Fig.1 Typical Output Characteristics**



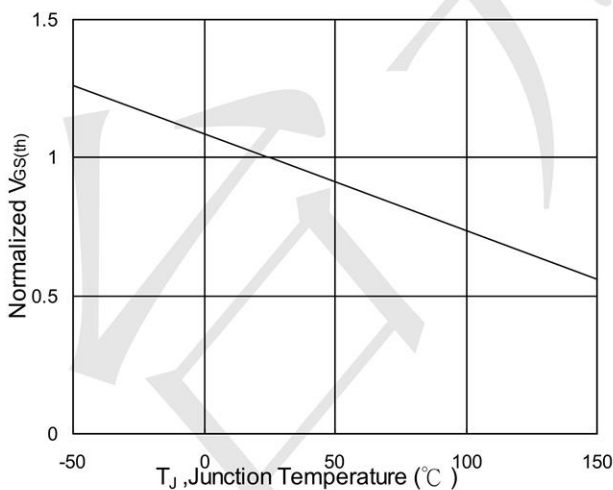
**Fig.2 On-Resistance vs. G-S Voltage**



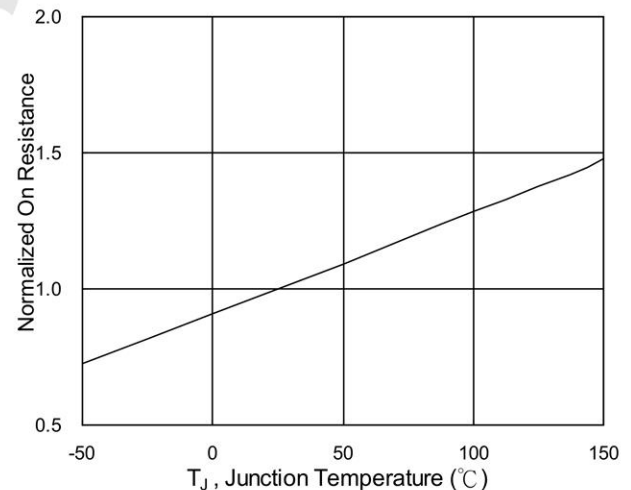
**Fig.3 Forward Characteristics of Reverse**



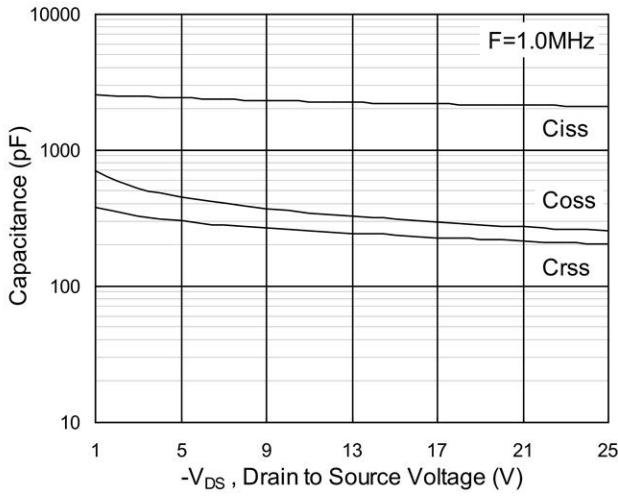
**Fig.4 Gate-Charge Characteristics**



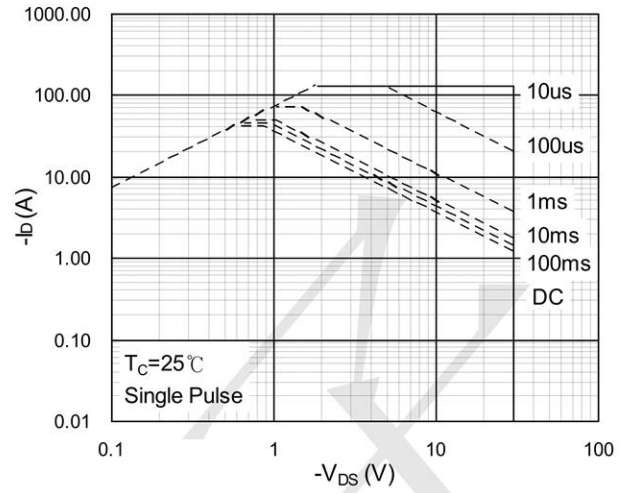
**Fig.5 Normalized  $V_{GS(th)}$  vs.  $T_J$**



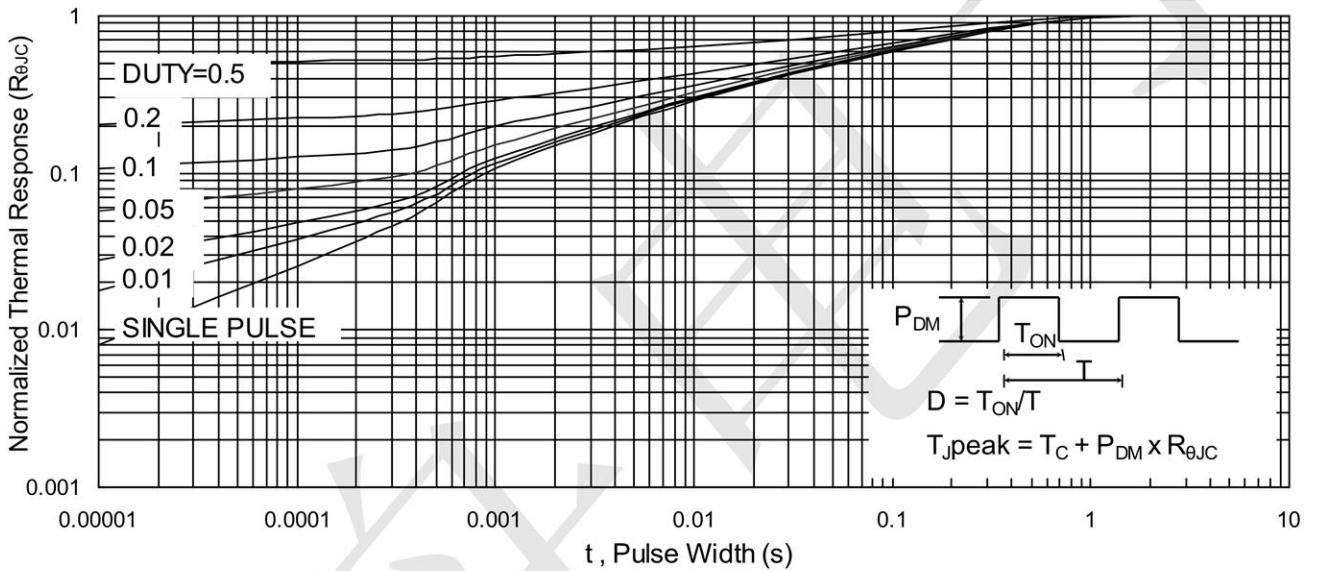
**Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$**



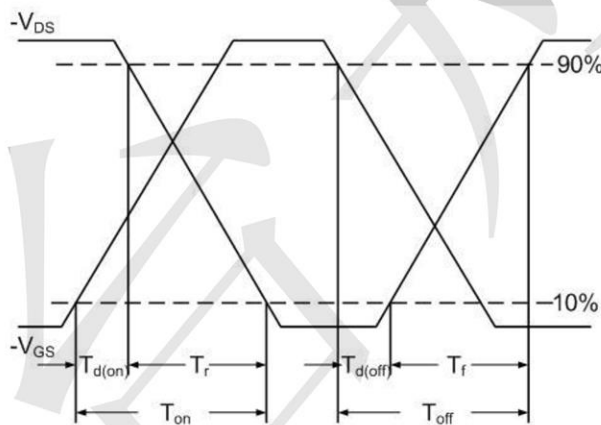
**Fig.7 Capacitance**



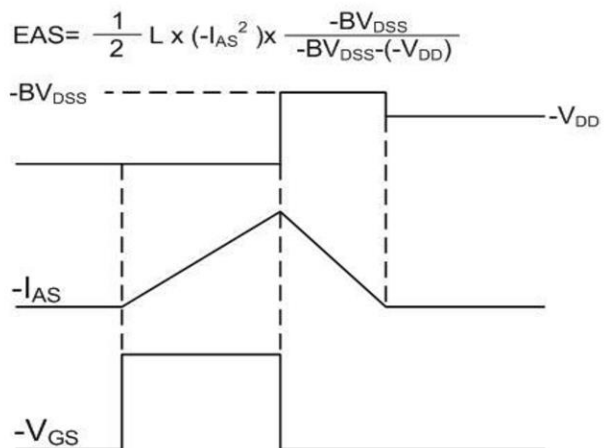
**Fig.8 Safe Operating Area**



**Fig.9 Normalized Maximum Transient Thermal Impedance**

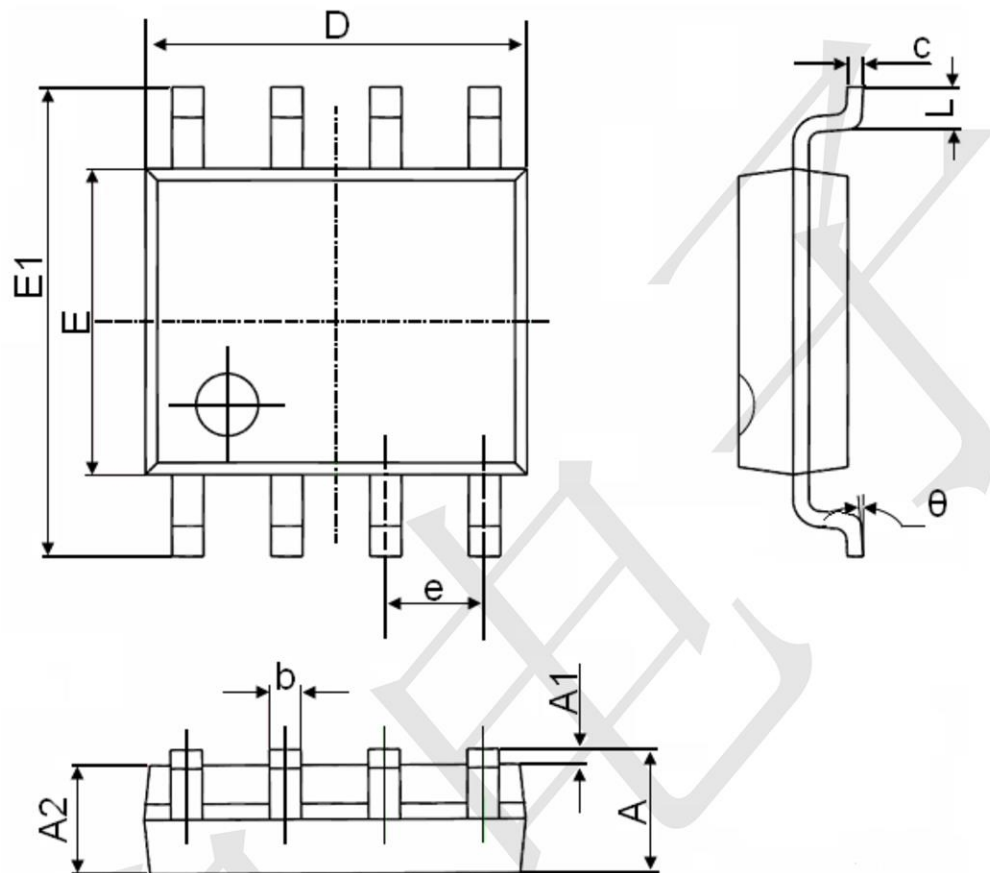


**Fig.10 Switching Time Waveform**



**Fig.11 Unclamped Inductive Switching Waveform**

**SOP-8 Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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