GENERAL FEATURES
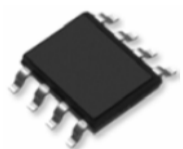
- V_{DS} = -30V, I_D = -12A
- $R_{DS(ON)}$(Typ.) 9.5mΩ @ V_{GS}=-10V
- $R_{DS(ON)}$(Typ.)14mΩ @ V_{GS}=-4.5V

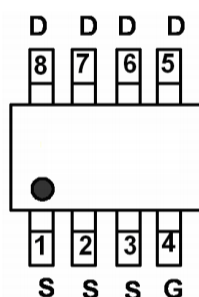## Application

- PWM applications
- Load switch
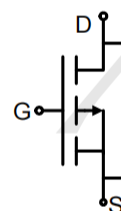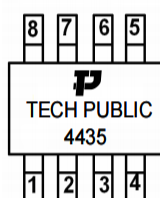- Power management

Package and Pin Configuration

SOP-8 top view

Circuit diagram

Marking:

Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-12	A
Drain Current-Pulsed [Note 1]	I_{DM}	-48	A
Maximum Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	℃

Thermal CharacteristicE

	Symbol		Unit
Thermal Resistance,Junction-to-Ambient [Note 2]	$R_{θJA}$	41.67	℃/W

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250µA	-30		-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V	-	-	-1	µA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250µA	-1	-1.5	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-10A	-	9.5	13	mΩ
		V_{GS}=-4.5V, I_D=-7A	-	14	19	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-10V,I_D=-10A	20	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{Iss}	V_{DS}=-15V,V_{GS}=0V, F=1.0MHz	-	1200	-	PF
Output Capacitance	C_{oss}		-	200	-	PF
Reverse Transfer Capacitance	C_{rss}		-	150	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, ID=-10A, V_{GS}=-10V,R_{GEN}=1Ω	-	11	-	nS
Turn-on Rise Time	t_r		-	6	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	28	-	nS
Turn-Off Fall Time	t_f		-	10	-	nS
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-10A,V_{GS}=-10V	-	25	-	nC
Gate-Source Charge	Q_{gs}		-	3.9	-	nC
Gate-Drain Charge	Q_{gd}		-	4.8	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=-2A	-	-	-1.2	V

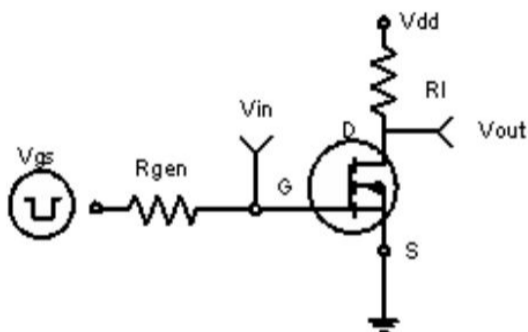## Typical Electrical and Thermal Characteristics
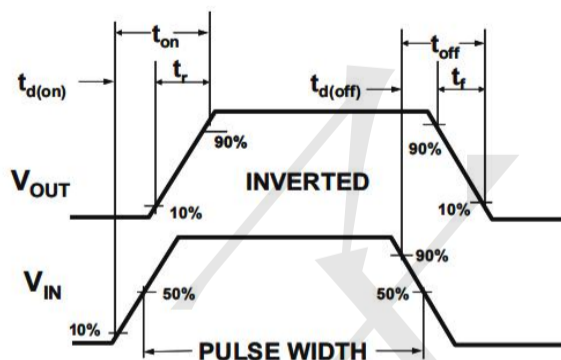

Figure 1:Switching Test Circuit
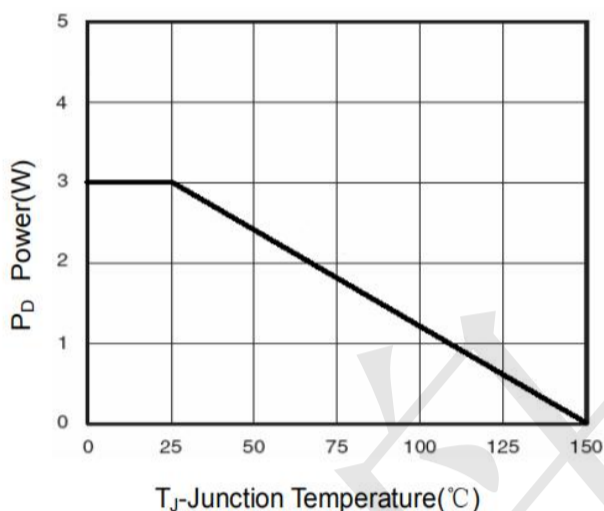

Figure 2:Switching Waveforms

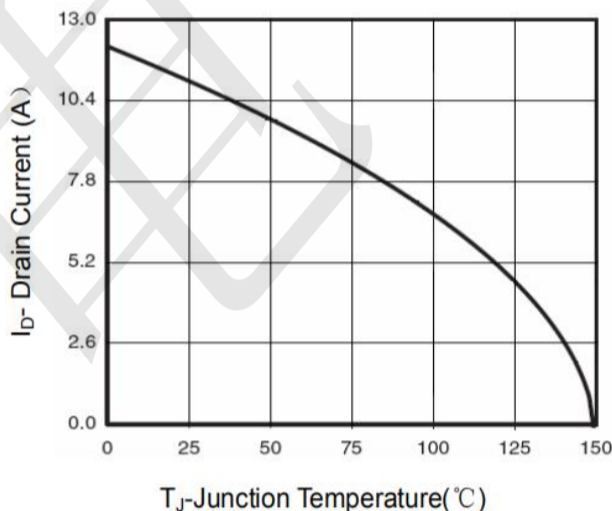**Figure 3 Power Dissipation**

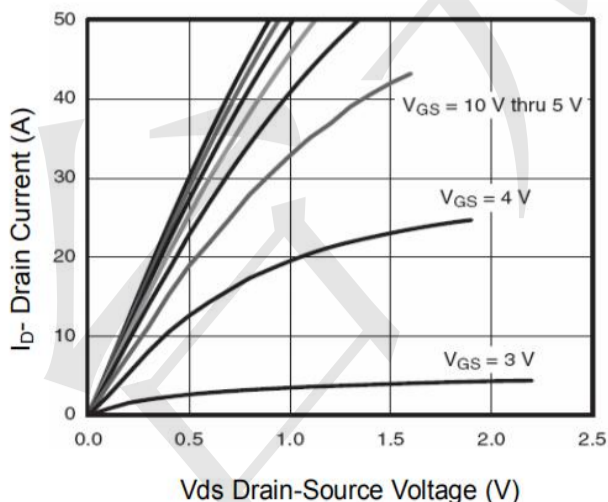**Figure 4 Drain Current**

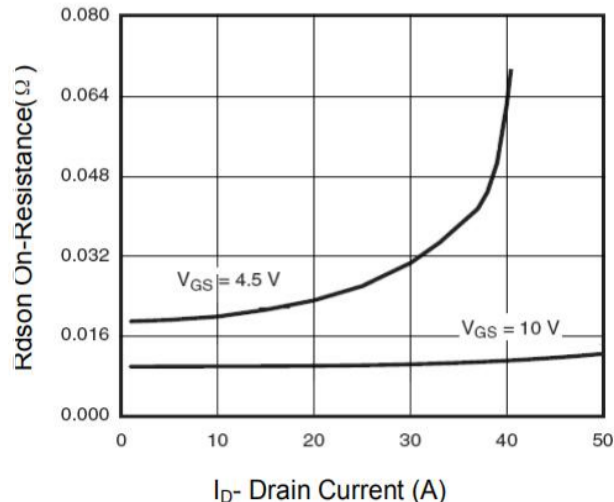**Figure 5 Output Characteristics**
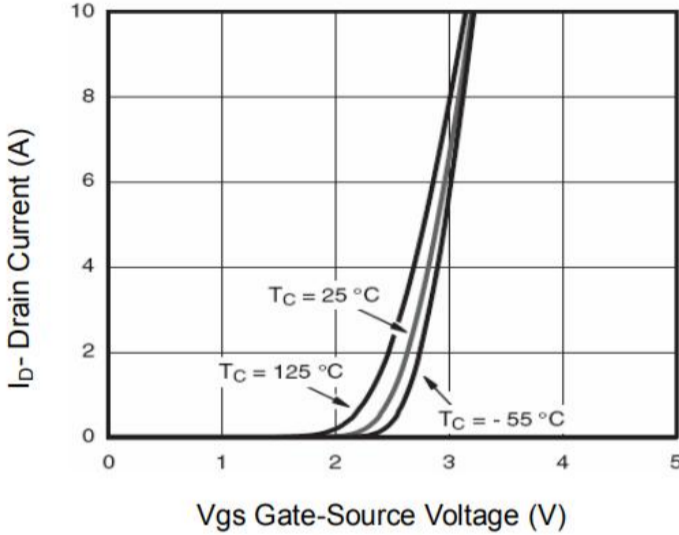

Figure 6 Drain-Source On-Resistance

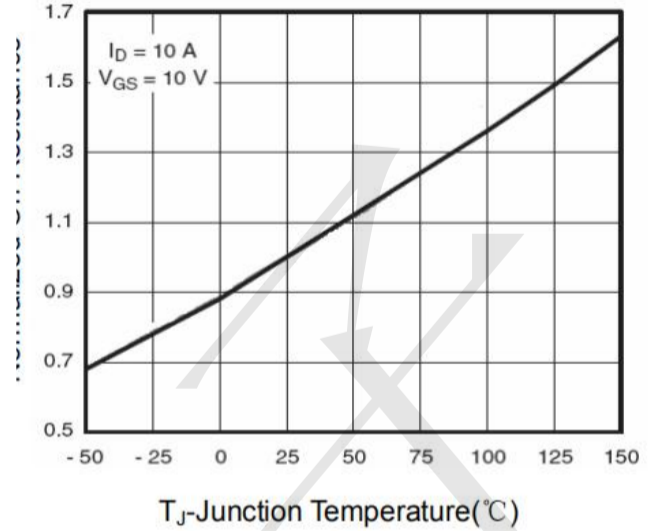**Figure 7 Transfer Characteristics**

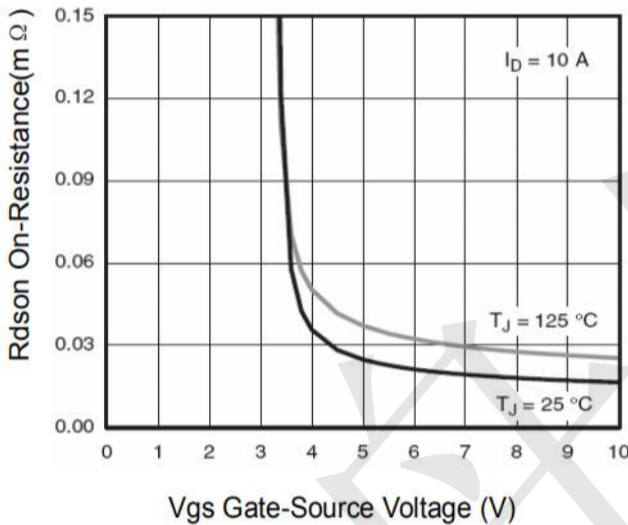**Figure 8 Drain-Source On-Resistance**
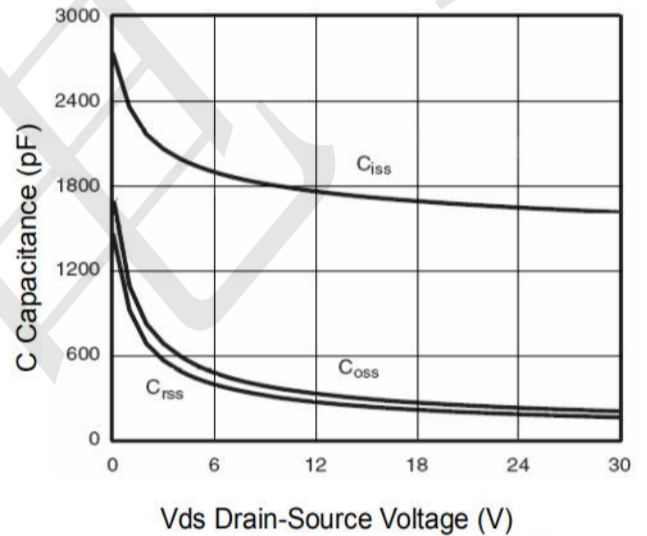

Figure 9 Rdson vs Vgs

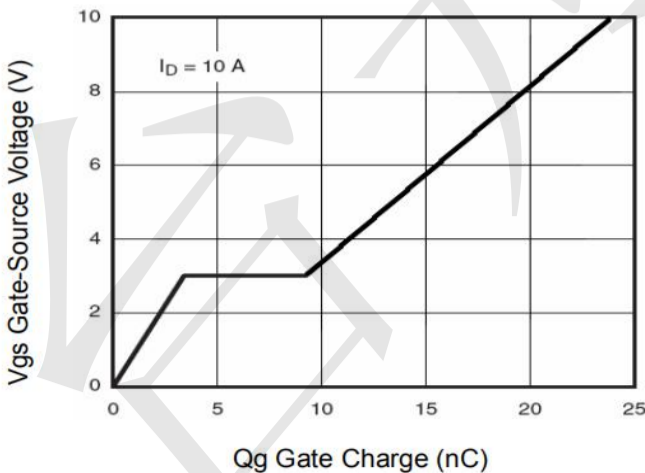

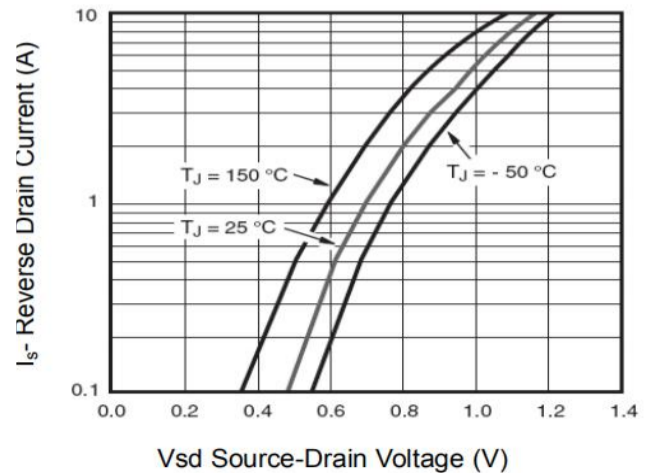**Figure 10 Capacitance vs Vds**

Figure 11 Gate Charge

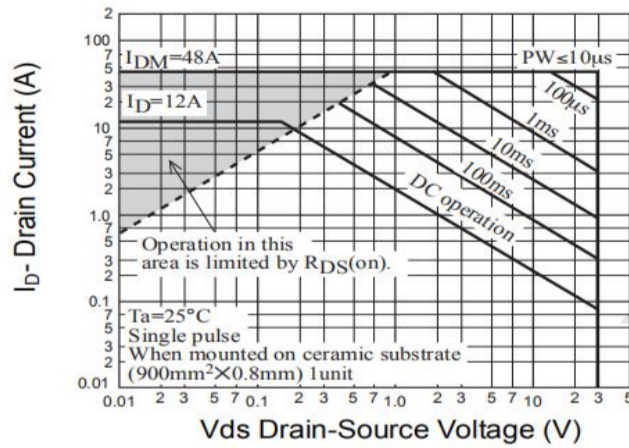**Figure 12 Source- Drain Diode Forward**

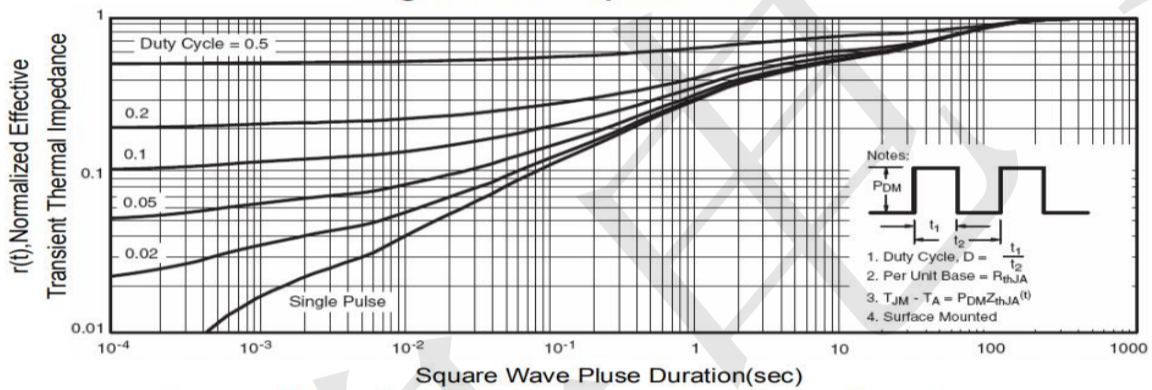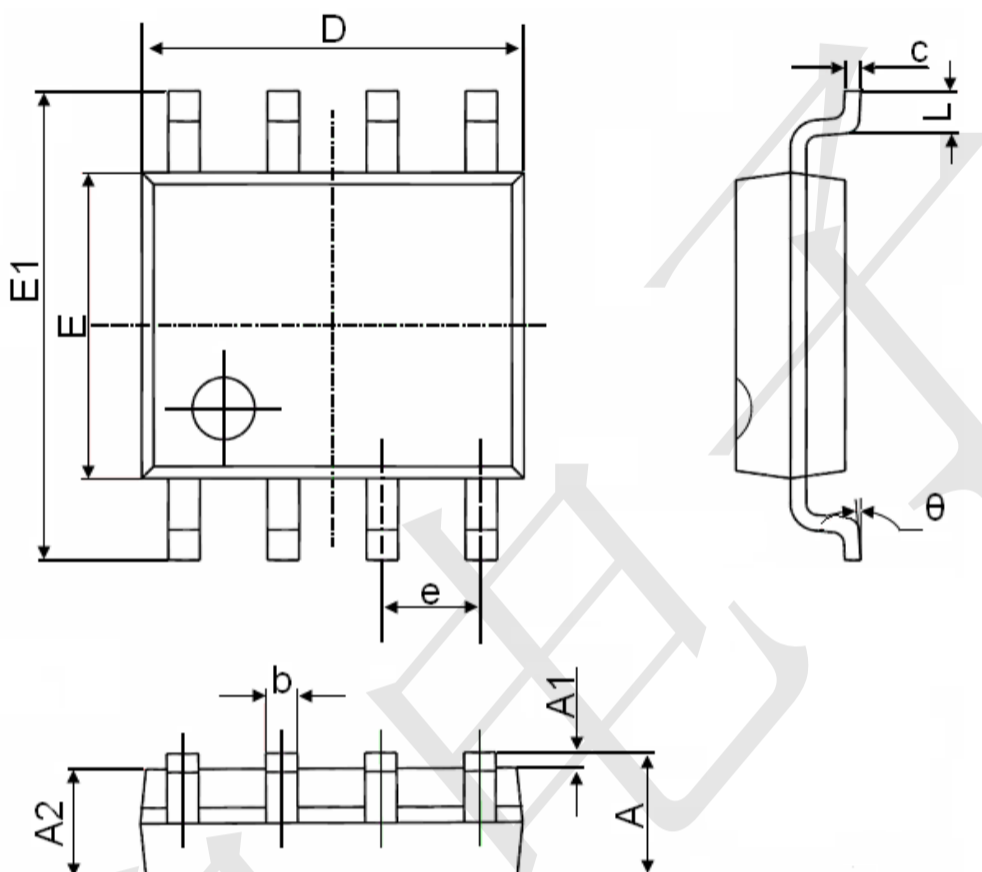**Figure 13 Safe Operation Area**

Figure 14 Normalized Maximum Transient Thermal Impedance

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°