

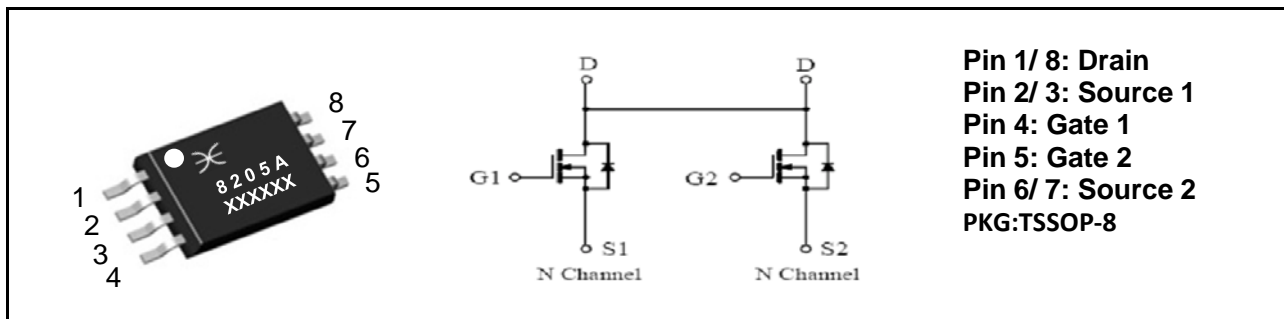
### Dual N-Channel High Density Trench MOSFET (20V, 6A)

#### PRODUCT SUMMARY

$V_{DSS}$	$I_D$	$R_{DS(on)}$ (m $\Omega$ ) Typ.
20V	6.0A	19 @ $V_{GS} = 4.5V, I_D=6A$
		20 @ $V_{GS} = 4.0V, I_D=6A$
		25 @ $V_{GS} = 2.5V, I_D=5.2A$

#### Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Surface mount Package
- Lead (Pb) -free and halogen-free



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

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Drain Current (Continuous)	6	A
$I_{DM}$	Drain Current (Pulsed) <sup>a</sup>	20	A
$P_D$	Total Power Dissipation @ $T_A=25^\circ C$	2	W
$I_S$	Maximum Diode Forward Current	1.7	A
$T_j, T_{stg}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$
$R_{QJA}$	Thermal Resistance Junction to Ambient (PCB mounted) <sup>b</sup>	62	$^\circ C/W$

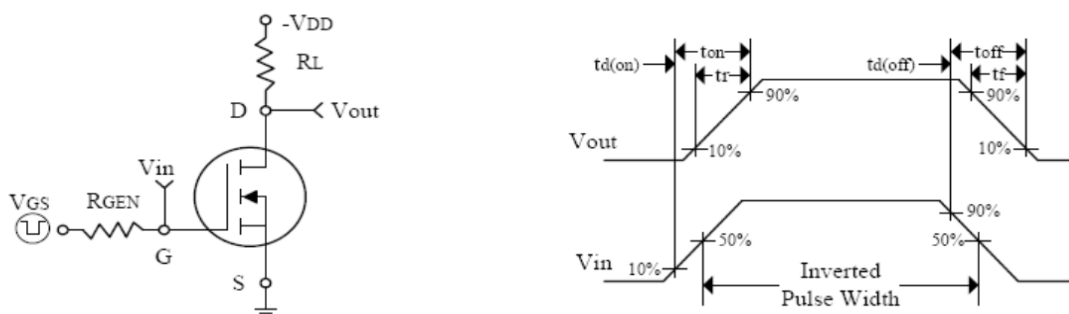
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in<sup>2</sup> 2oz Cu PCB board

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

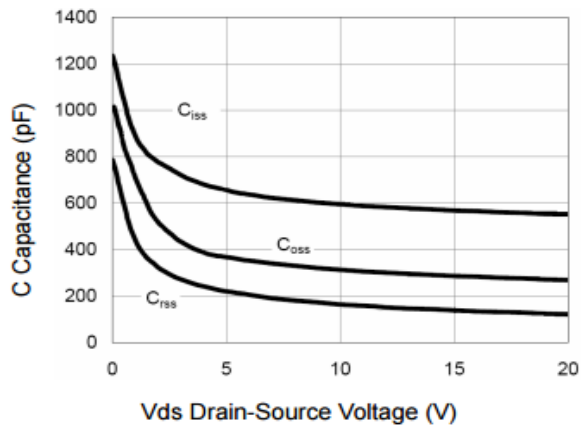
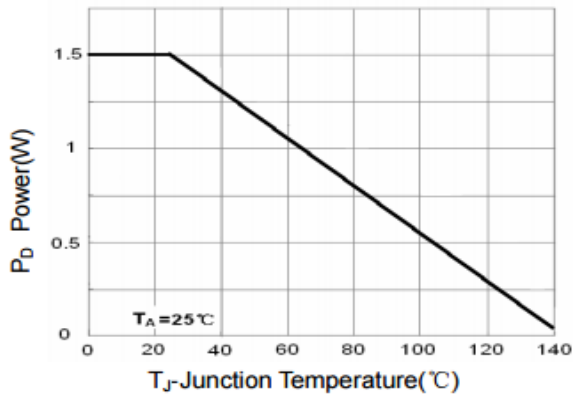
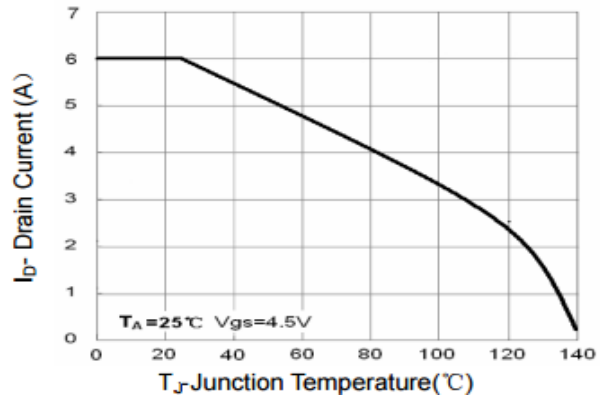
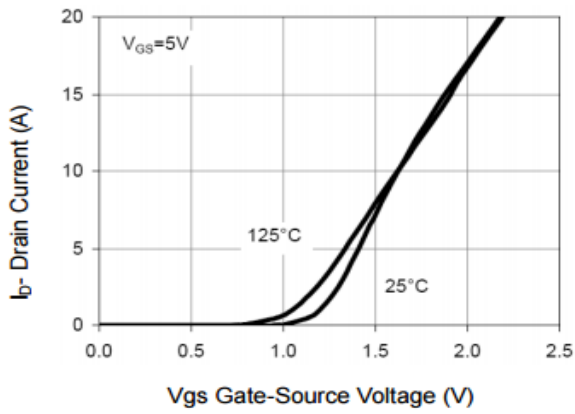
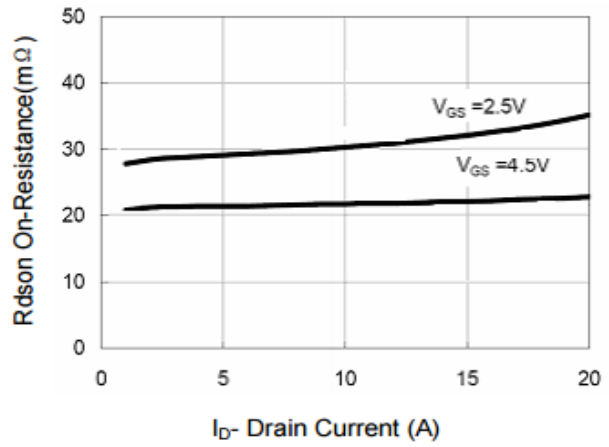
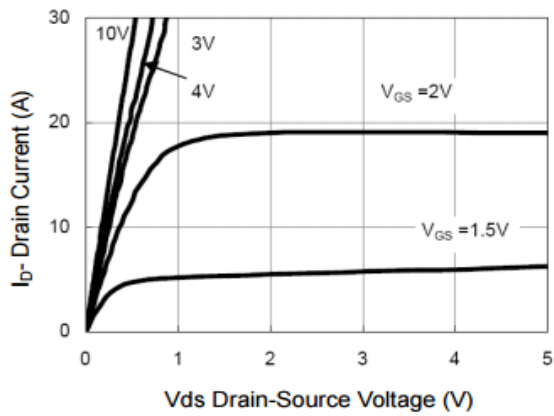
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
<b>• Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	20	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	-	1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±10	μA
<b>• On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.5	0.65	1.0	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A	-	19	24	mΩ
		V <sub>GS</sub> =3V, I <sub>D</sub> =5.2A	-	20	27	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =5.2A	-	25	28	
<b>• Dynamic Characteristics</b>						
C <sub>iSS</sub>	Input Capacitance	V <sub>DS</sub> =6V, V <sub>GS</sub> =0V, f=1MHz	-	559	-	PF
C <sub>oss</sub>	Output Capacitance		-	148	-	
C <sub>rSS</sub>	Reverse Transfer Capacitance		-	127	-	
<b>• Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =10V, I <sub>D</sub> =6A, V <sub>GS</sub> =4.5V	-	5	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	0.9	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	1.4	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =10V, R <sub>L</sub> =1.2Ω, I <sub>D</sub> =1A, V <sub>GEN</sub> =10V, R <sub>G</sub> =6Ω	-	10.2	-	nS
t <sub>r</sub>	Turn-on Rise Time		-	7	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	33	-	
t <sub>f</sub>	Turn-off Fall Time		-	6.8	-	
<b>• Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =1.7A	-	-	1.2	V

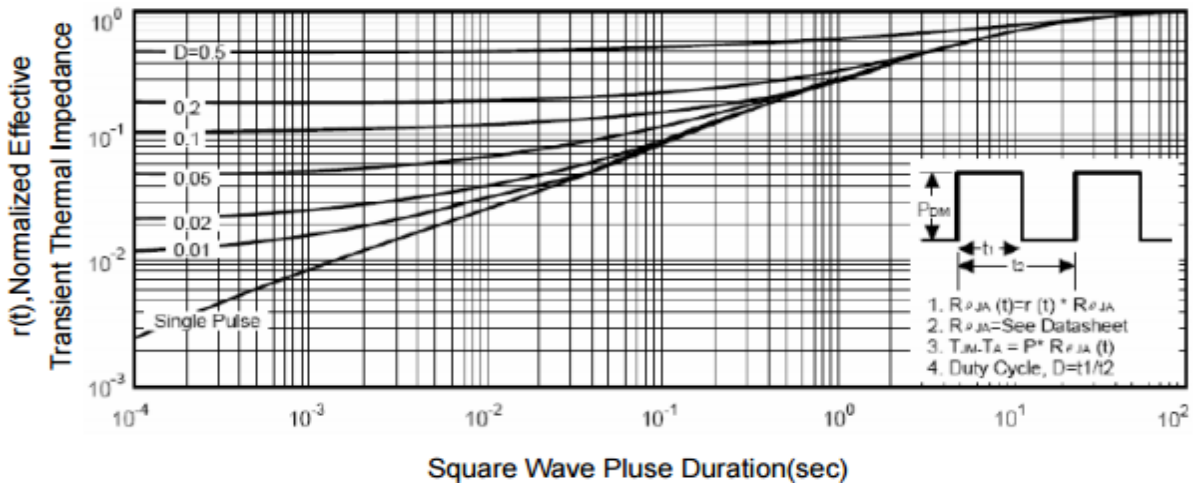
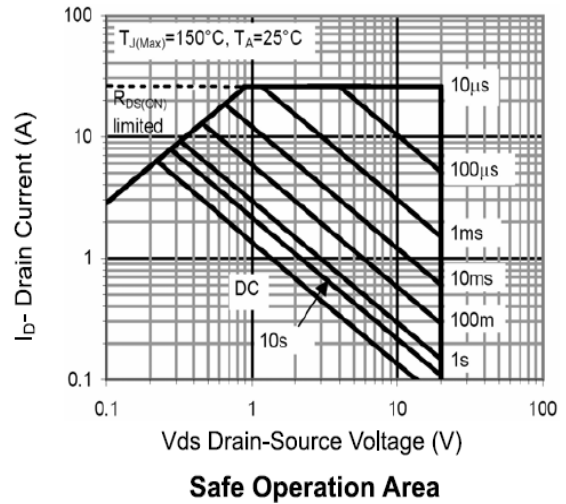
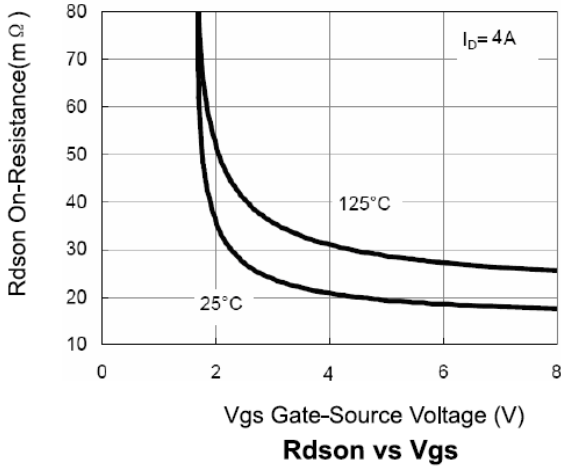
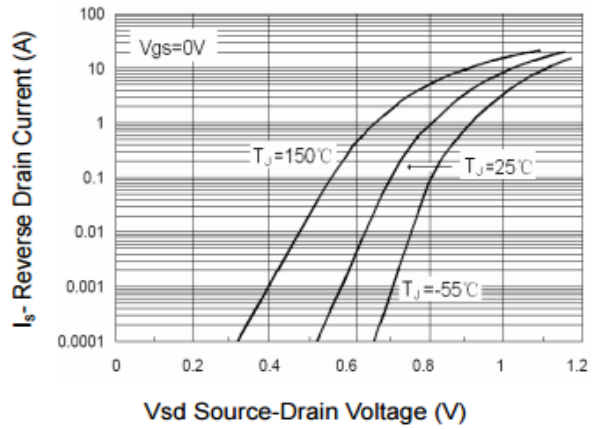
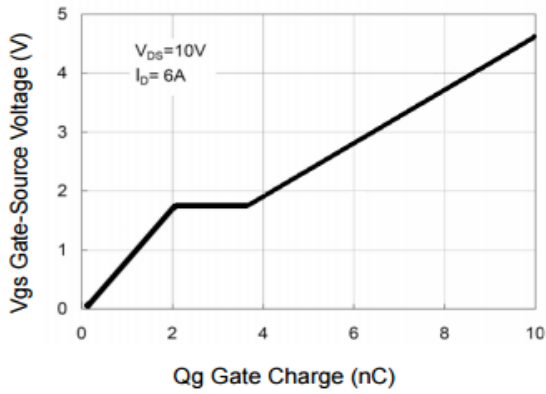
Note: Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%



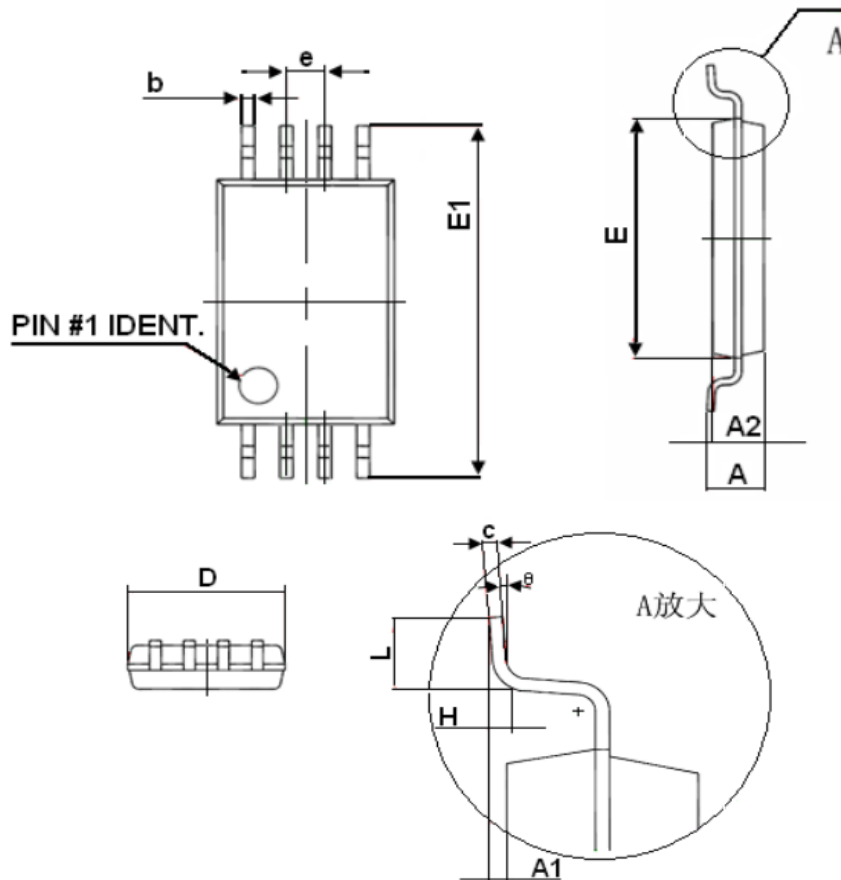
Switching Test Circuit and Switching Waveforms

### Typical Characteristics Curves (Ta=25°C, unless otherwise note)





### TSSOP8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters	
	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A		1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65(BSC)	
L	0.500	0.700
H	0.25(TYP)	
Θ	1°	7°