

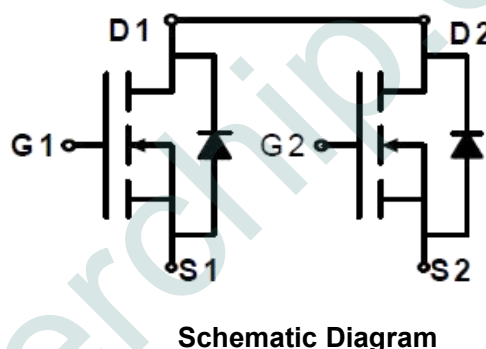
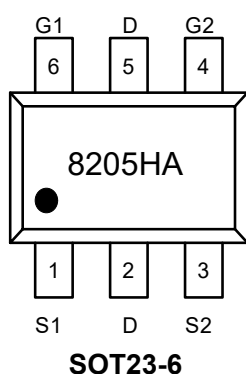
20V N-Channel Enhancement-Mode MOSFET

$R_{DS(ON)}, V_{GS}@2.5V, I_{DS}@4.0A = 23m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@4.0A = 19m\Omega$

Features

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package



Absolute Max Ratings at $T_c=25^{\circ}C$ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	20	V
Gate to Source Voltage	V_{GSS}	± 12	V
Drain Current-Continuous	I_D	6	A
Drain Current (Pulse)	I_{DM}	20	A
Maximum Power Dissipation	P_D	1.96	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}C$
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	T_L	260	$^{\circ}C$

Note 1:

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Electrical Characteristics at Tc=25°C (Note 2)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu A, V_{GS}=0V$	20	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.4	0.7	1	V
Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D=4A, V_{GS}=4.5V$	-	19	24	m Ω
		$I_D=3A, V_{GS}=2.5V$	-	23	29	m Ω
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=10V,$ Frequency=1.0MH	-	362	-	pF
Output Capacitance	C_{oss}		-	48	-	pF
Reverse Transfer Capacitance	C_{rss}		-	39	-	pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=3A,$ $V_{GS}=4.5V, R_{GEN}=10\Omega$	-	120	-	ns
Turn-ON Rise Time	t_r		-	198	-	ns
Turn-OFF Delay Time	$t_{d(off)}$		-	42	-	ns
Turn-ON Fall Time	t_f		-	132	-	ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V,$ $I_D=1A$	-	9	-	nC
Gate-Source Charge	Q_{gs}		-	0.6	-	nC
Gate-Drain Charge	Q_{gd}		-	1.0	-	nC
Diode Forward Voltage	V_{SD}	$I_S=4A, V_{GS}=0V$	0.4	0.8	1.2	V

Note 2:

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Typical electrical and thermal characteristics

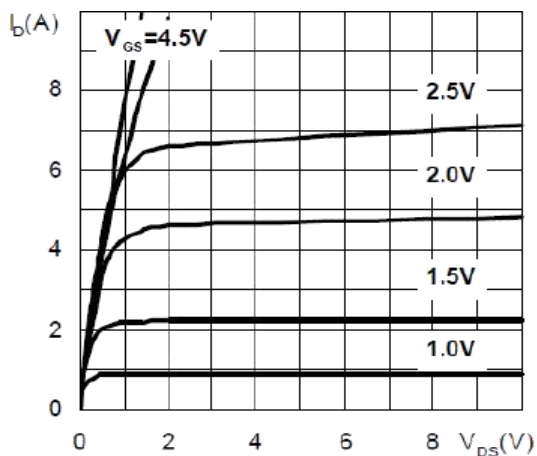


Figure 1 Output Characteristics

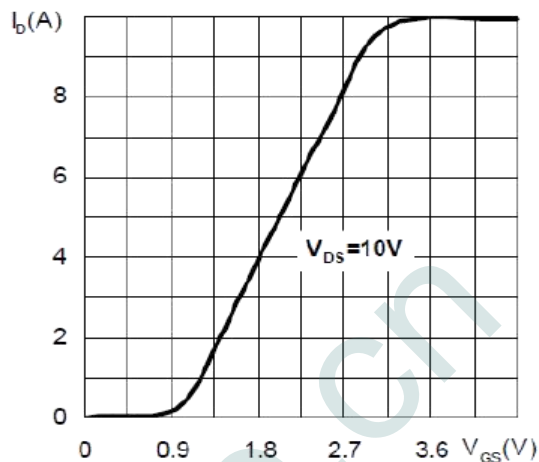


Figure 2 Transfer Characteristics

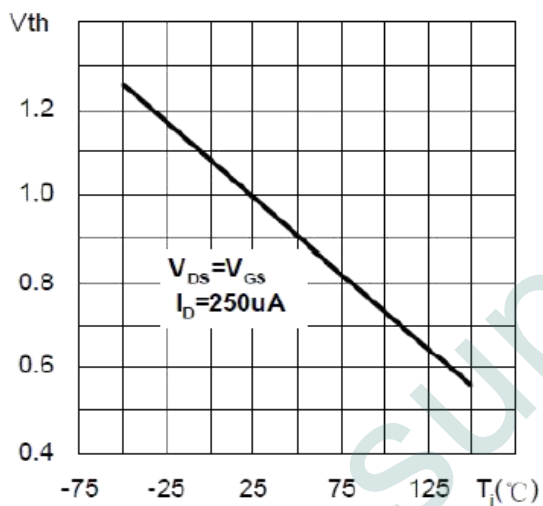


Figure 3 Thershold Voltage vs. Temperature

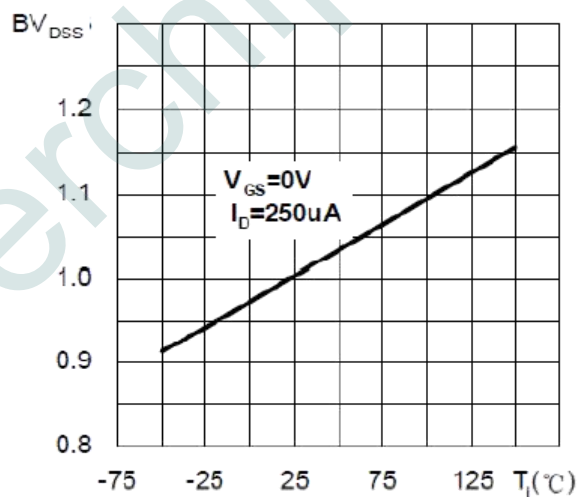


Figure 4 BVDSS vs. Temperature

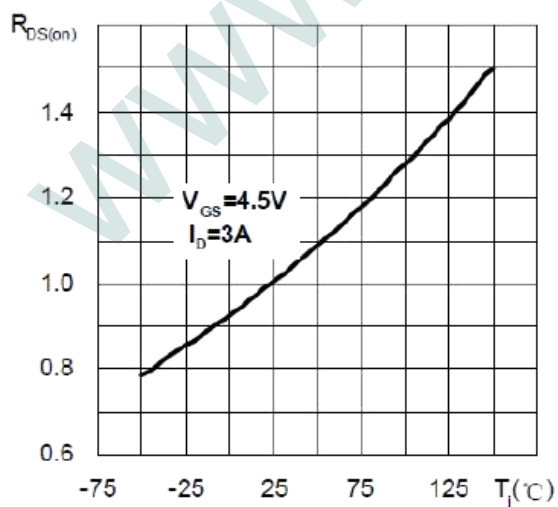


Figure 5 Rds(on) vs. Temperature

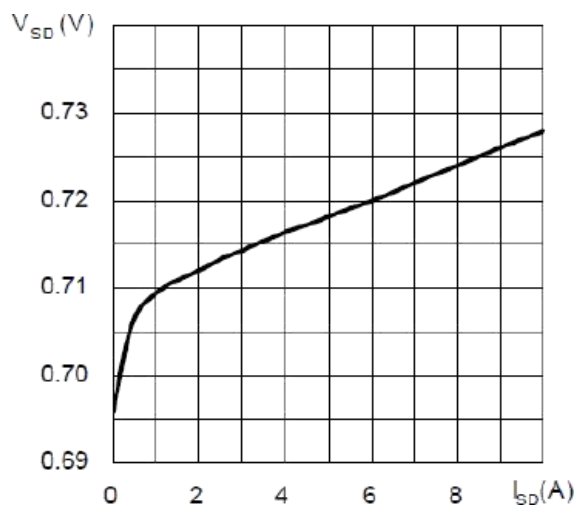


Figure 6 Source to Drain vs. Temperature

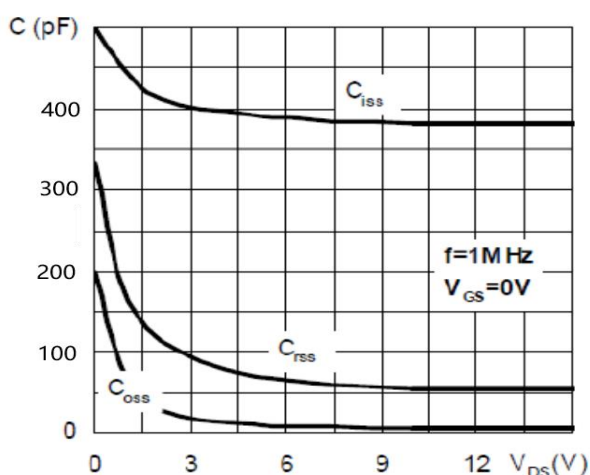


Figure 7 Capacitance

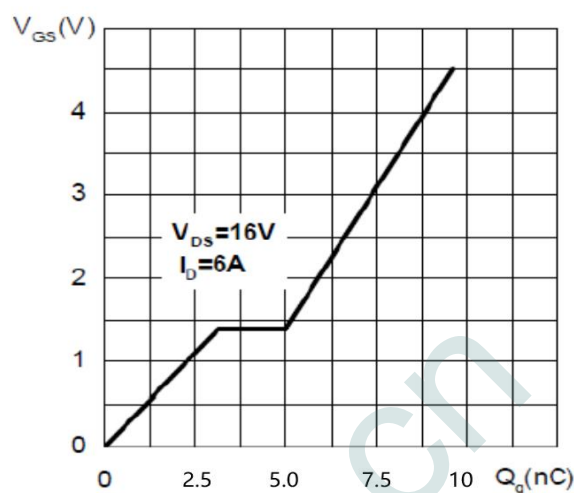


Figure 8 Gate Charge

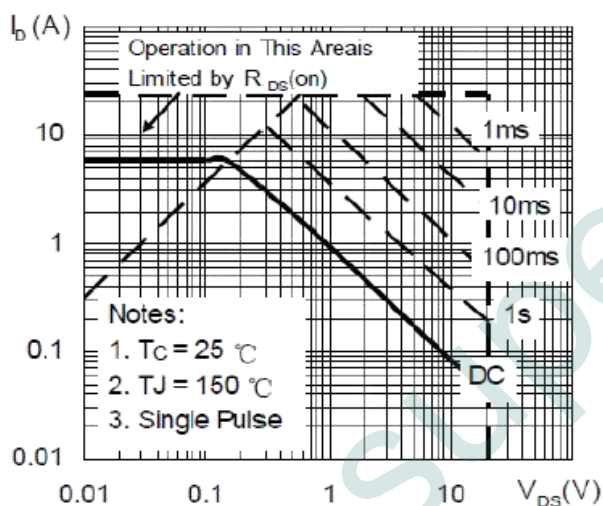


Figure 9 Safe Operating Area

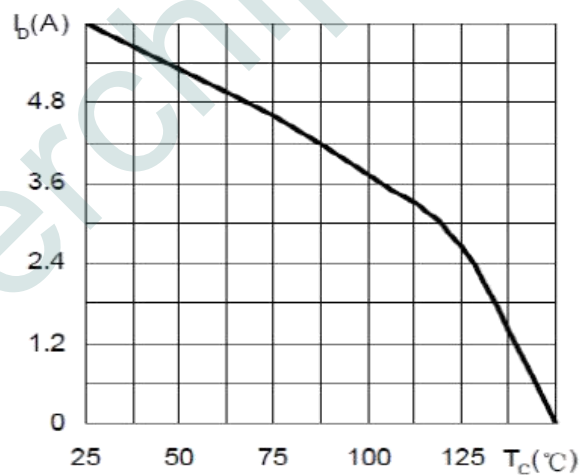


Figure 10 Maximum Drain Current vs. Case

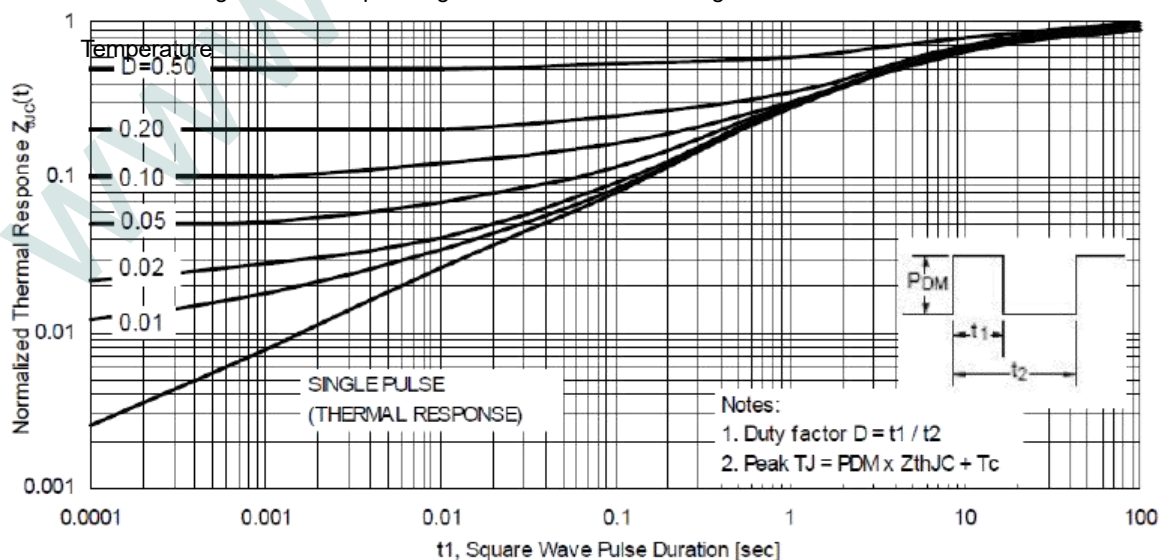
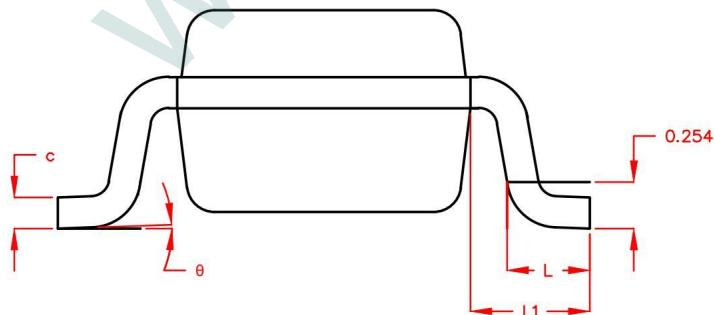
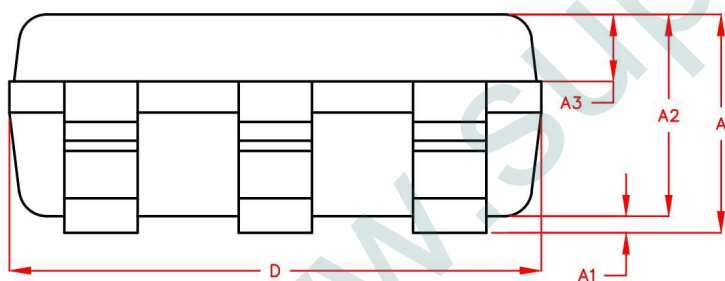
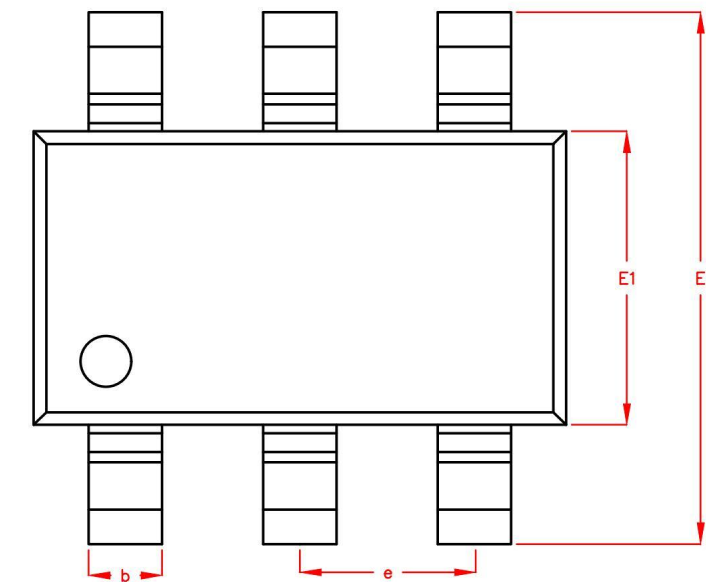


Figure 11 Maximum Transient Thermal Impedence

Package Dimensions

➤ SOT23-6



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.14	1.19	1.24
A1	0	0.05	0.15
A2	1.05	1.10	1.15
A3	0.28	0.30	0.32
b	0.35	0.40	0.45
c	0.12	0.17	0.22
D	2.85	2.90	2.95
E	2.85	2.95	3.05
E1	1.55	1.60	1.65
e	0.95BSC		
L	0.30	0.45	0.60
L1	0.65BSC		
θ	0°	2°	8°