

SOT23-6

Complementary Enhancement MOSFET in a SOT23-6 Plastic Package

N-channel

$V_{DS}(V)=30V$

$I_D=5.5A$

$R_{DS(ON)}@10V<25m\Omega$ (TYP. 21.5mR)

$R_{DS(ON)}@4.5V<35m\Omega$ (TYP. 23mR)

$R_{DS(ON)}@2.5V<50$ (TYP. 30mR)

HF Product.

P-channel

$V_{DS}(V)=-30V$

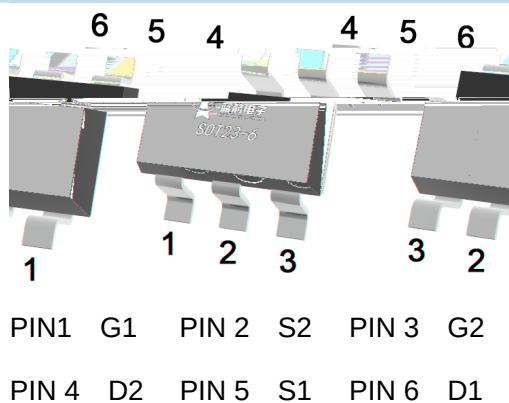
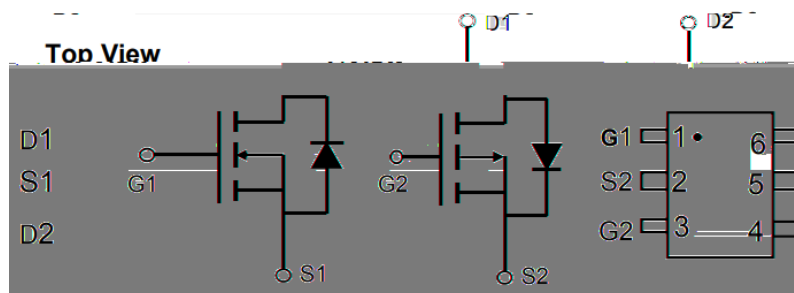
$I_D=-4.0A$

$R_{DS(ON)}@-10V<55m\Omega$ (TYP. 46mR)

$R_{DS(ON)}@-4.5V<65m\Omega$ (TYP. 53mR)

$R_{DS(ON)}@-2.5V<120m\Omega$ (TYP. 70mR)

Power Management in Notebook computer, Portable Equipment and Battery powered systems.



See Marking Instructions.

Parameter	Symbol	Rating		Unit
		N-channel	P-channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 12		V
Continuous Drain Current	$I_D (T_C=25^\circ\text{C})$	5.5	-4.0	A
Pulsed Drain Current	I_{DM}	35	-25	A
Power Dissipation	$P_D (T_C=25^\circ\text{C})$	1.3	1.3	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		
Maximum Junction-to-Ambient	$R_{\theta JA}$	140		/W
Maximum Junction-to-Lead	$R_{\theta JL}$	75		/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	30	32.6		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	0.5	0.9	1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=4A$		21.5	25	m Ω
		$V_{GS}=4.5V$ $I_D=4A$		23	35	m Ω
		$V_{GS}=2.5V$ $I_D=1A$		30	50	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$		0.74	1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		690		pF
Output Capacitance	C_{oss}			200		pF
Reverse Transfer Capacitance	C_{rss}			130		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		3.5		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=3.5A$		4.1		nC
Total Gate Charge	$Q_{g(4.5V)}$			2.2		nC
Gate-Source Charge	Q_{gs}			0.6		nC
Gate-Drain Charge	Q_{gd}			1.1		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=4.2\Omega$ $R_{GEN}=3\Omega$		4.6		ns
Turn-On Rise Time	t_r			1.4		ns
Turn-Off Delay Time	$t_{d(off)}$			18.7		ns
Turn-Off Fall Time	t_f			15.8		ns

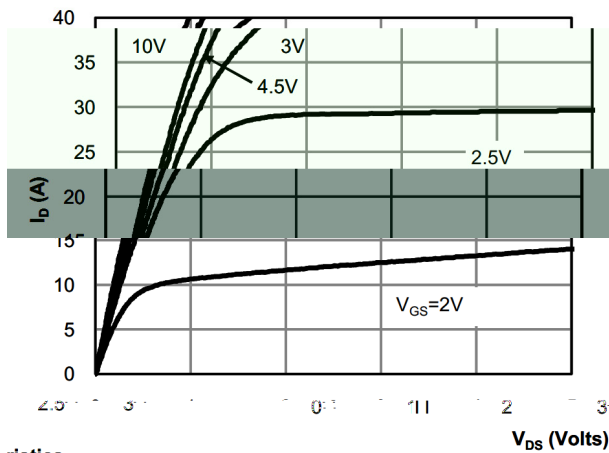


Fig 1: On-Region Characteristics

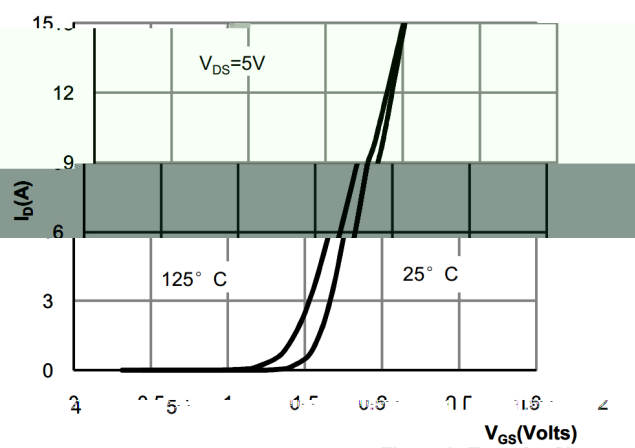


Figure 2: Transfer Characteristics

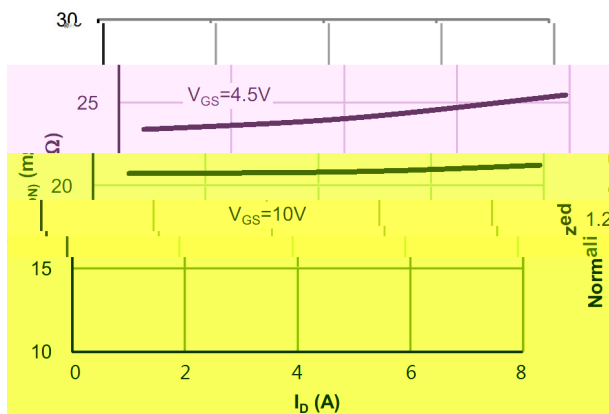


Figure 3: On-Resistance vs. Drain Current and Gate-Source Voltage

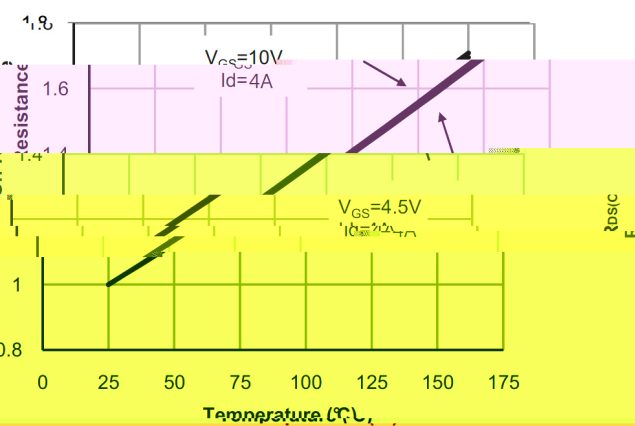


Figure 4: On-Resistance vs. Junction Temperature

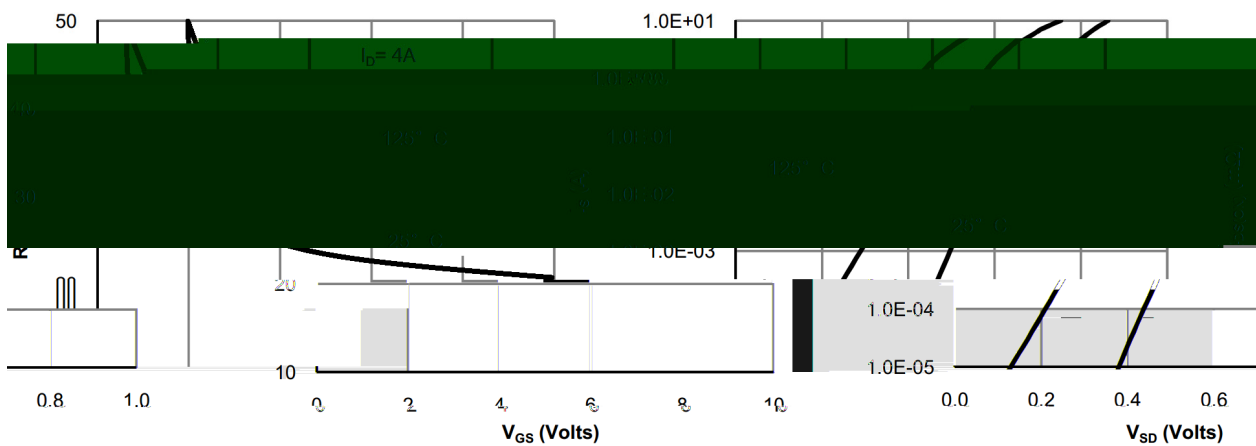


Figure 5: On-Resistance vs. Gate-Source Voltage

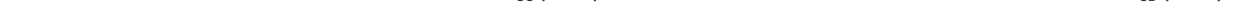


Figure 6: Body-Diode Characteristics

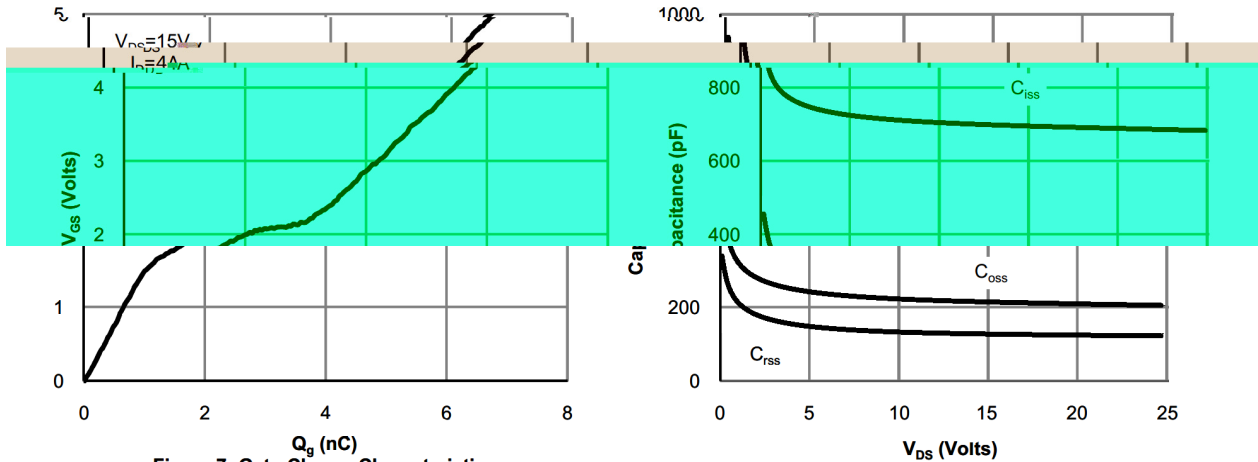


Figure 7: Gate-Charge Characteristics

Figure 8: Capacitance Characteristics

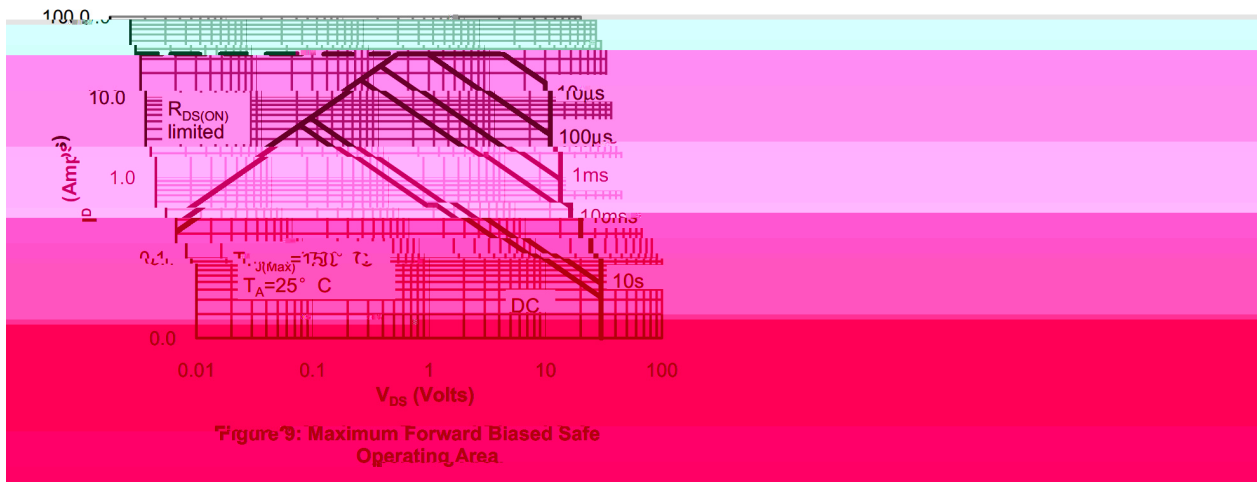


Figure 9: Maximum Forward Biased Safe Operating Area

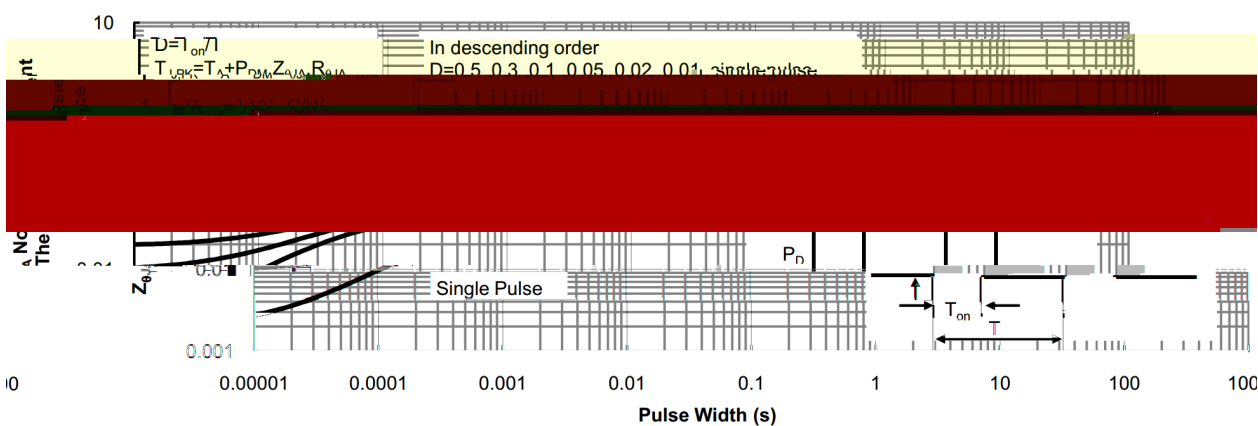


Figure 10: Normalized Maximum Transient Thermal Impedance

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=-250\mu A$	-30	-32		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V$ $V_{GS}=0V$			-1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.5	-0.9	-1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-4A$		46	55	m Ω
		$V_{GS}=-4.5V$ $I_D=-4A$		53	65	m Ω
		$V_{GS}=-2.5V$ $I_D=-1A$		70	120	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-1A$		-0.76	-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-25V$ $V_{GS}=0V$ $f=1.0MHz$		900		pF
Output Capacitance	C_{oss}			240		pF
Reverse Transfer Capacitance	C_{rss}			190		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		4.5		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-2.7A$		4.4		nC
Total Gate Charge	$Q_{g(4.5V)}$			2.3		nC
Gate-Source Charge	Q_{gs}			0.75		nC
Gate-Drain Charge	Q_{gd}			1.2		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-15V$ $V_{GS}=-10V$ $R_L=5.55\Omega$ $R_{GEN}=3\Omega$		7.8		ns
Turn-On Rise Time	t_r			4.3		ns
Turn-Off Delay Time	$t_{d(off)}$			11.5		ns
Turn-Off Fall Time	t_f			3.7		ns

Ø □ =) ¢ / Package Dimensions

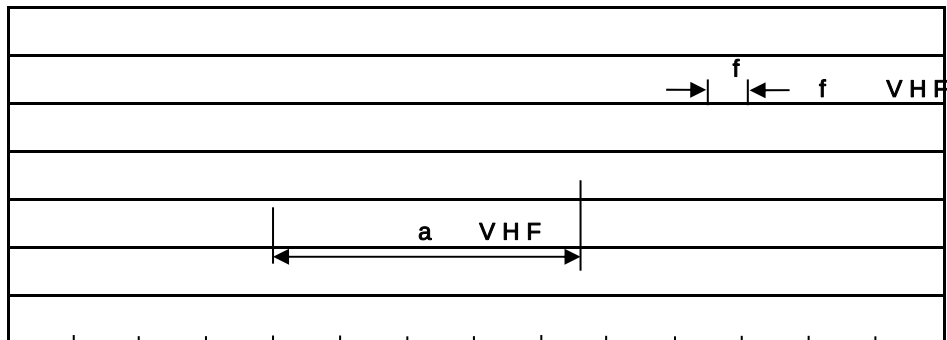
, M y f / Marking Instructions

B01H

^a ¢ y
B01H: ° Z W A
****: ÿ D Z W A k š ÿ D Z J

Note:
B01H y Product Type Code
****: Lot No.Code,code change with Lot No

šWD t... • Ž Ć (x/) / :KSVKXGZ[XK 6XULORK LUX /8 8KLRU] 9URJKXOTM 6



^a Ć y

10• Ä ½ “ † 150 ½180 - k ž • 60 ½90sec;

20• Q > “ † 245 r5 - k ž • 4 Ò 5 r0.5sec;

30•D N ò i Ò 0 , † 2 ½10 - /sec.

Note:

1.Preheating:150~180 - , Time:60~90sec.

2.Peak Temp.:245 r5 - , Duration:5 r0.5sec.

3. Cooling Speed: 2~10 - /sec.

ÂD /Cã p ¯ »] / Resistance to Soldering Heat Test Conditions

“ † y 260 r5 -

ž • y 10 r1 sec.

Temp.:260±5

Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL

Package Type 7>û ~ E	Units ;>û H					Dimension ;>û p . (unit /mm ³)		
	Units/Reel / --	Reels/Inner Box -- /-	Units/Inner Box /-	Inner Boxes/Outer Box - /1ç	Units/Outer Box /1ç	Reel	Inner Box	Outer Boxç
SOT23-5/6	3,000	10	30,000	4	120,000	7 s ×8	210×205×205	445×435×230

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