

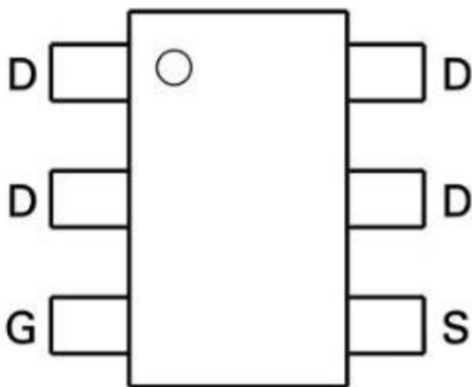
### Product Summary

- $V_{DS}$  -40 V
- $I_{DS}$  (at  $V_{GS}=-10V$ ) -5A
- $R_{DS(ON)}$  (at  $V_{GS}=-10V$ ) <85m $\Omega$
- $R_{DS(ON)}$  (at  $V_{GS}=-4.5V$ ) <112m $\Omega$

### Application

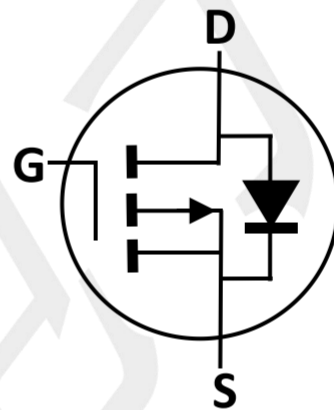
- Reverse Battery protection
- Load switch
- Power management
- Motor Control

### Package and Pin Configuration



SOT23-6

### Circuit diagram



Equivalent Circuit

Marking:GHTPM

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

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	$V_{DS}$	-40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	$T_C=25^\circ\text{C}$	-5
		$T_C=125^\circ\text{C}$	-2.8
Pulsed Drain Current	$I_{DM}$	-18	A
Total Power Dissipation	$P_{DTOT}$	1.6	W
Operating Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	$R_{thJA}$	110	$^\circ\text{C}/\text{W}$

Note : When mounted on 1" square PCB (FR4 material).

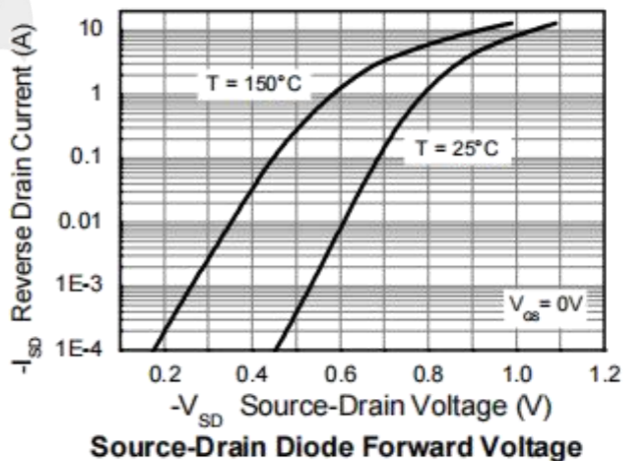
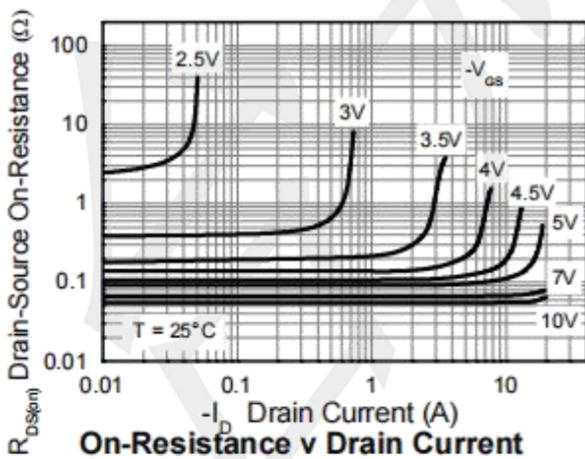
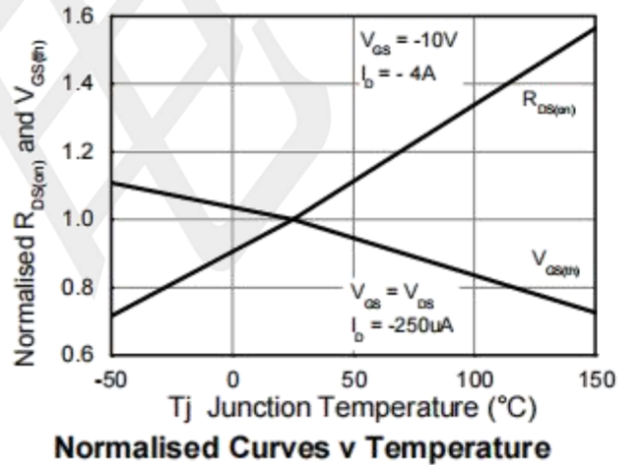
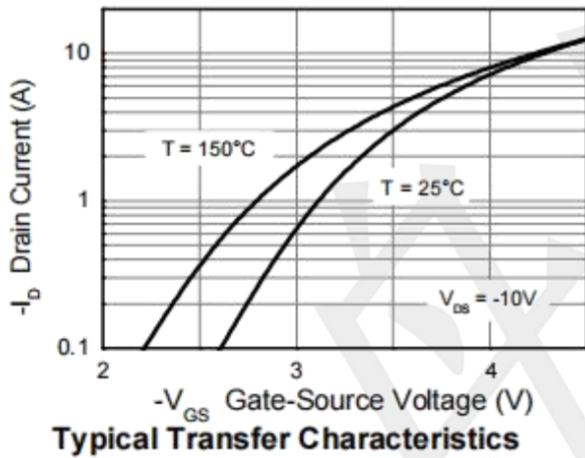
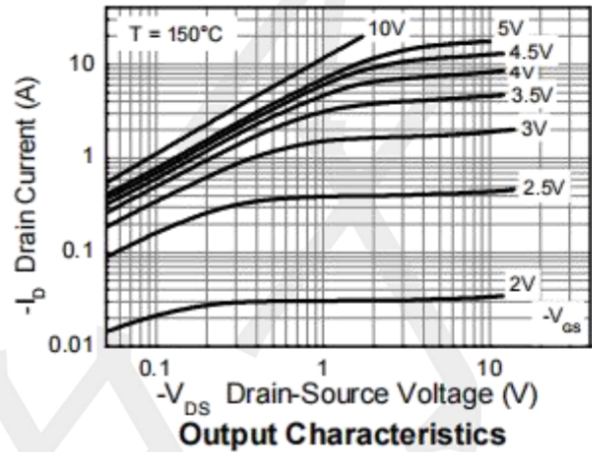
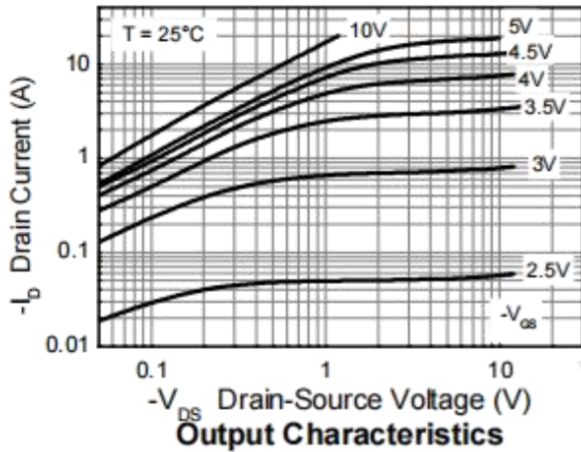
### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	BV <sub>DSS</sub>	-40	--	--	V
Gate-Source Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = -250μA	V <sub>GS(th)</sub>	-1.0	-1.5	-3.0	V
Gate-Source Leakage	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±20V	I <sub>GSS</sub>	--	--	±100	nA
Zero Gate Voltage Drain Current	V <sub>DS</sub> = -40V, V <sub>GS</sub> =0V	I <sub>DSS</sub>	--	--	-1	μA
	V <sub>DS</sub> = -40V, T <sub>J</sub> =125°C		--	--	-50	μA
Drain-Source On-State Resistance (Note 1)	V <sub>GS</sub> = -10V, I <sub>D</sub> = -5A	R <sub>DS(on)</sub>	--	68	85	mΩ
	V <sub>GS</sub> = -10V, T <sub>J</sub> = 125°C		--	148	--	
	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A		--	85	112	
Forward Transconductance (Note 2)	V <sub>DS</sub> = -20V, I <sub>D</sub> = -4A	g <sub>fs</sub>	--	7.6	--	S
<b>Dynamic</b> (Note 2)						
Total Gate Charge (Note 3)	V <sub>DS</sub> = -20V, I <sub>D</sub> = -4A, V <sub>GS</sub> = -4.5V	Q <sub>g</sub>	--	7.1	--	nC
Gate-Source Charge (Note 3)		Q <sub>gs</sub>	--	3.6	--	
Gate-Drain Charge (Note 3)		Q <sub>gd</sub>	--	2.7	--	
Input Capacitance	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, F = 1.0MHz	C <sub>iss</sub>	--	833	--	pF
Output Capacitance		C <sub>oss</sub>	--	122	--	
Reverse Transfer Capacitance		C <sub>rss</sub>	--	78	--	
<b>Switching</b>						
Turn-On Delay Time (Note 3)	V <sub>DD</sub> = -20V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -10V, R <sub>GEN</sub> = 1Ω	t <sub>d(on)</sub>	--	2.5	--	nS
Rise Time (Note 3)		t <sub>r</sub>	--	3.3	--	
Turn-Off Delay Time (Note 3)		t <sub>d(off)</sub>	--	47	--	
Fall Time (Note 3)		t <sub>f</sub>	--	21	--	
<b>Source-Drain Diode Ratings and Characteristics</b> (Note 2)						
Forward Voltage	V <sub>GS</sub> = 0V, I <sub>F</sub> = -2A	V <sub>SD</sub>	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I <sub>S</sub>	--	--	-5	A
Pulsed Current (Note 1)		I <sub>SM</sub>	--	--	-18	A

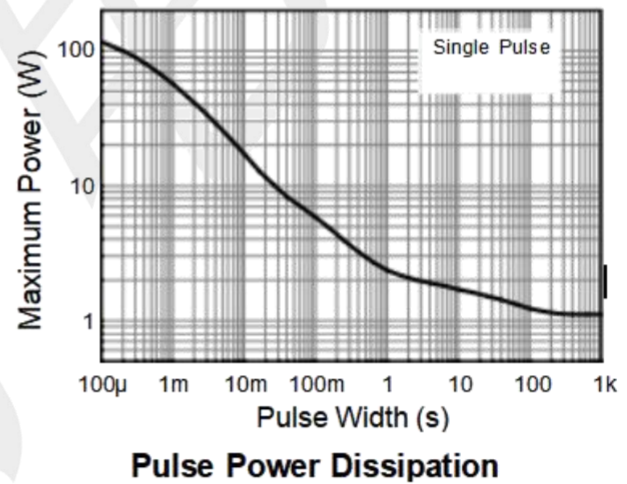
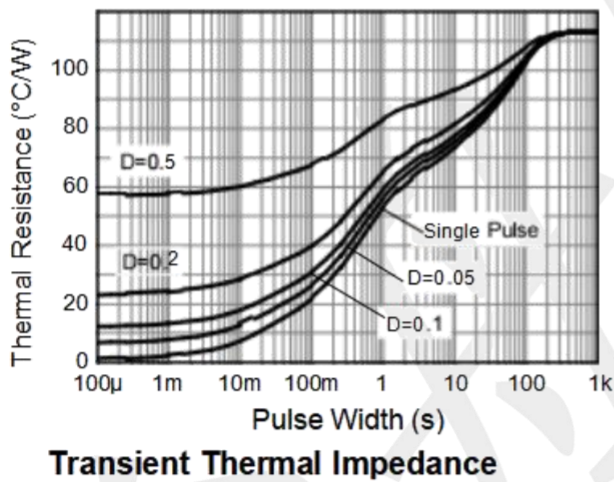
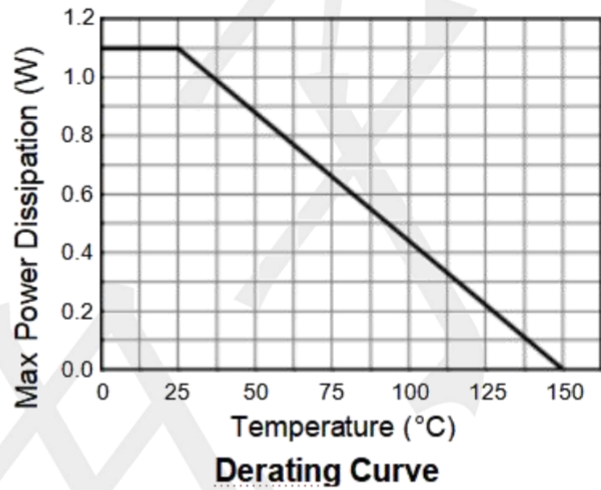
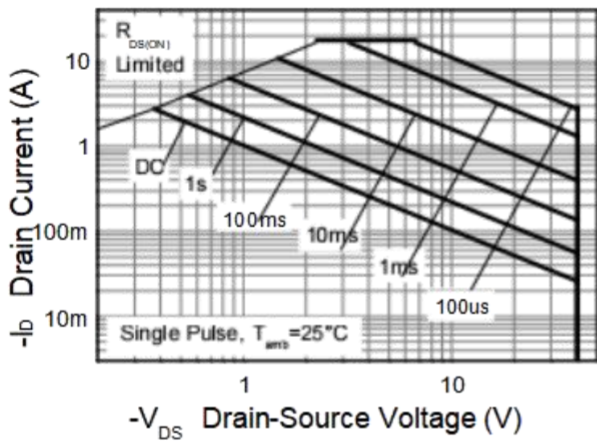
Notes:

1. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

### TYPICAL CHARACTERISTICS

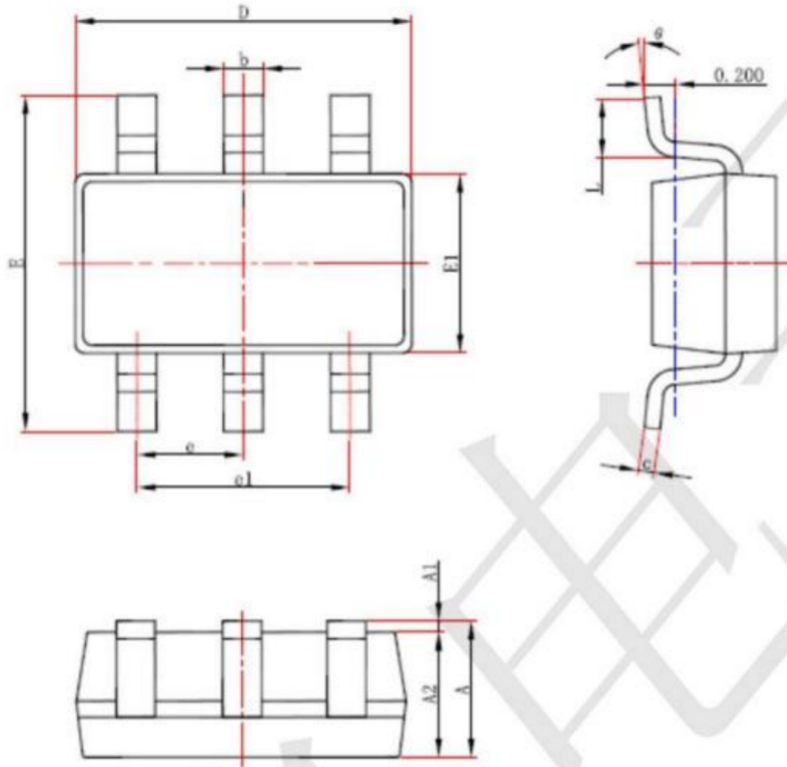


### Thermal Characteristics





**SOT23-6 Package Outline Dimensions**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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