

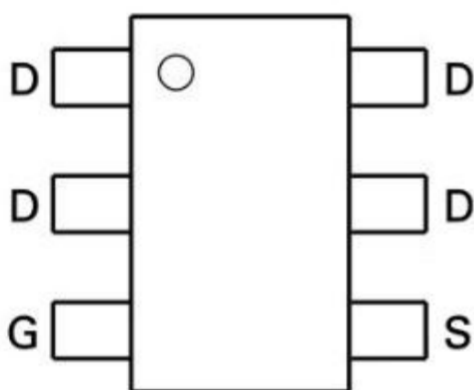
Product Summary

- V_{DS} -40 V
- I_{DS} (at $V_{GS}=-10V$) -4A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <85m Ω
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <112m Ω

Application

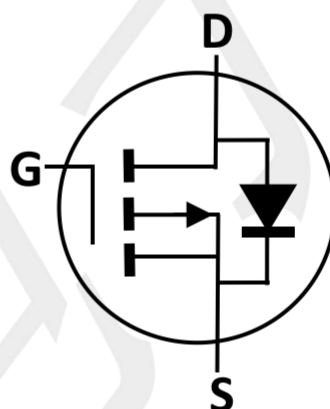
- Reverse Battery protection
- Load switch
- Power management
- Motor Control

Package and Pin Configuration



SOT23-6

Circuit diagram



Equivalent Circuit

Marking:GHTPM

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

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	-4	A
	$T_C=125^{\circ}C$		-2.8	
Pulsed Drain Current		I_{DM}	-18	A
Total Power Dissipation	$T_C=25^{\circ}C$	P_{DTOT}	1.6	W
Operating Junction Temperature		T_J	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55 to +150	$^{\circ}C$

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	PCB Mount (Note)	R_{thJA}	110	$^{\circ}C/W$

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

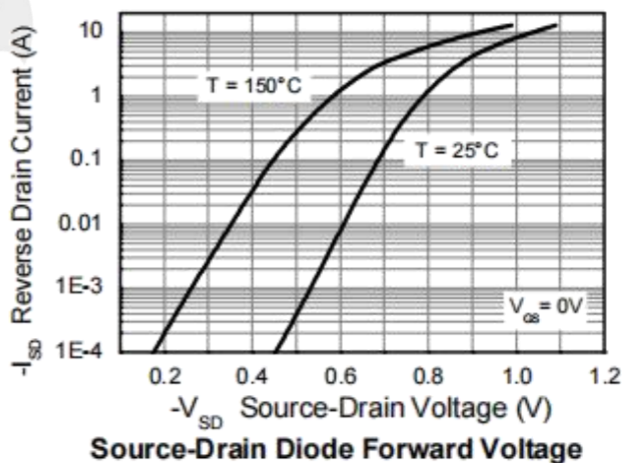
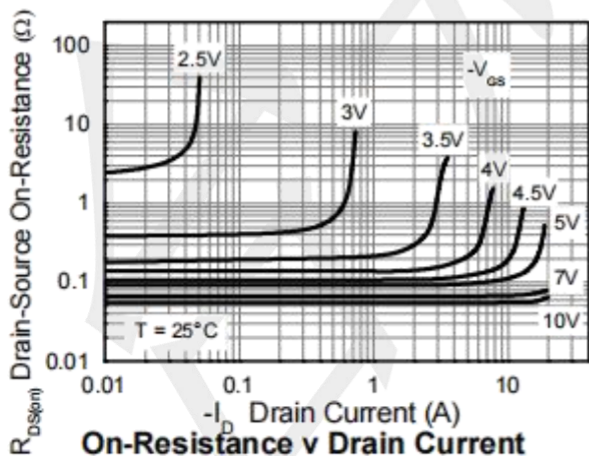
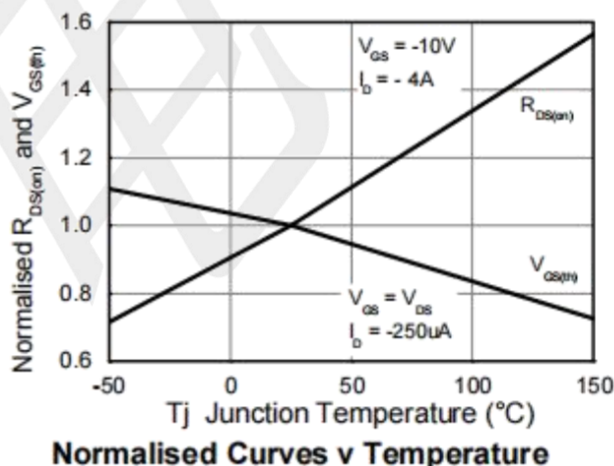
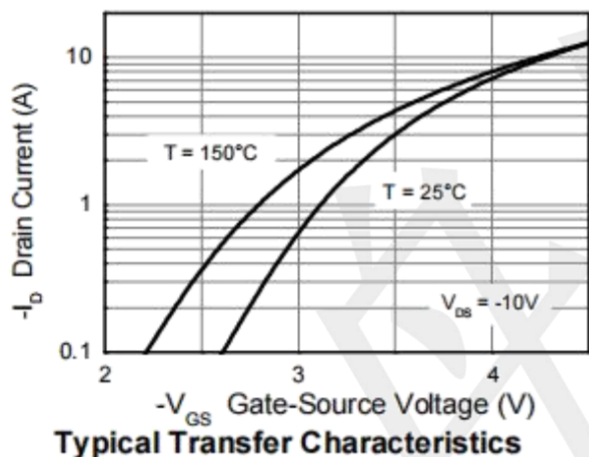
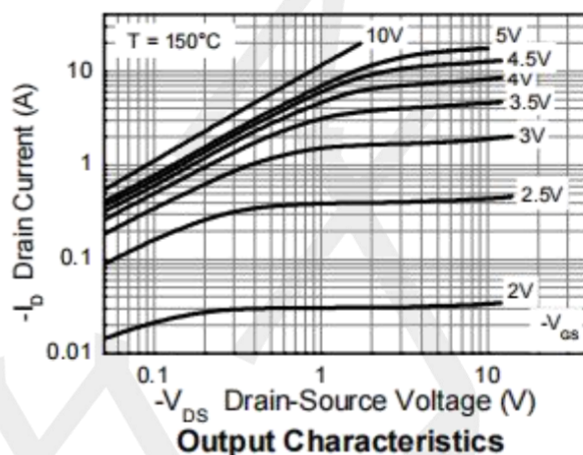
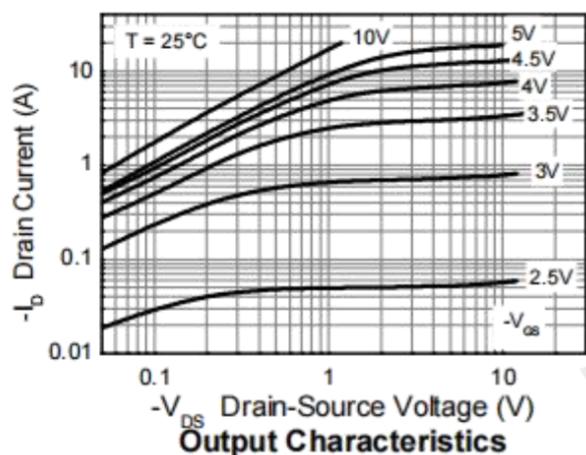
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-40	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.0	-1.5	-3.0	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}= \pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}= -40V, V_{GS}=0V$	I_{DSS}	--	--	-1	μA
	$V_{DS}= -40V, T_J=125^{\circ}C$		--	--	-50	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}= -10V, I_D= -5A$	$R_{DS(on)}$	--	68	85	m Ω
	$V_{GS}= -10V, T_J= 125^{\circ}C$		--	148	--	
	$V_{GS}= -4.5V, I_D= -4A$		--	85	112	
Forward Transconductance (Note 2)	$V_{DS}= -20V, I_D= -4A$	g_{fs}	--	7.6	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS}= -20V, I_D= -4A,$ $V_{GS}= -4.5V$	Q_g	--	7.1	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	3.6	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	2.7	--	
Input Capacitance	$V_{DS}= -20V, V_{GS}= 0V,$ $F= 1.0MHz$	C_{iss}	--	833	--	pF
Output Capacitance		C_{oss}	--	122	--	
Reverse Transfer Capacitance		C_{rss}	--	78	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DD}= -20V, I_D= -1A,$ $V_{GS}= -10V,$ $R_{GEN}= 1\Omega$	$t_{d(on)}$	--	2.5	--	nS
Rise Time (Note 3)		t_r	--	3.3	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	47	--	
Fall Time (Note 3)		t_f	--	21	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS}= 0V, I_F= -2A$	V_{SD}	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-4	A
Pulsed Current (Note 1)		I_{SM}	--	--	-18	A

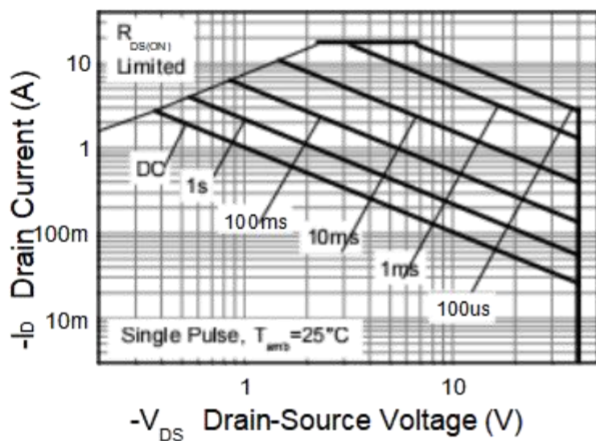
Notes:

1. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

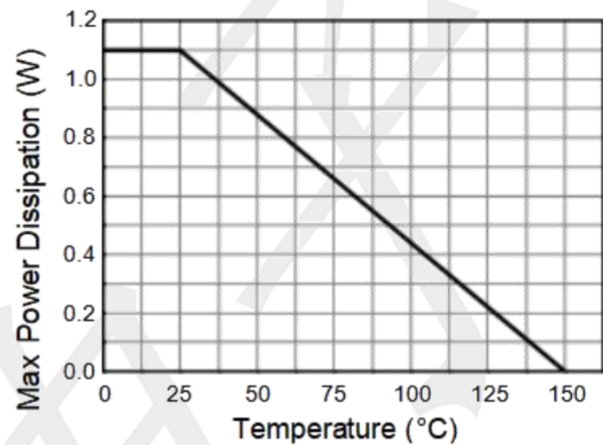
TYPICAL CHARACTERISTICS



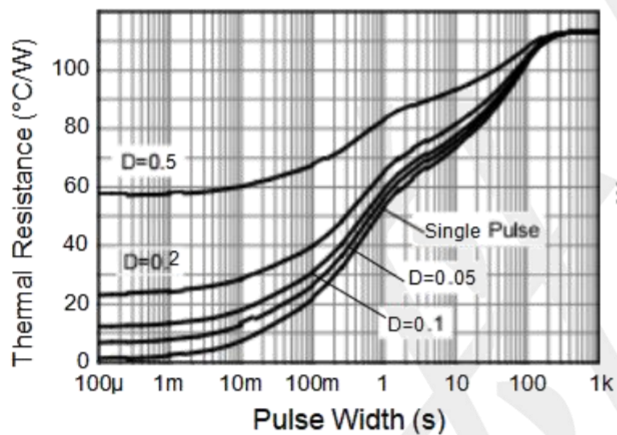
Thermal Characteristics



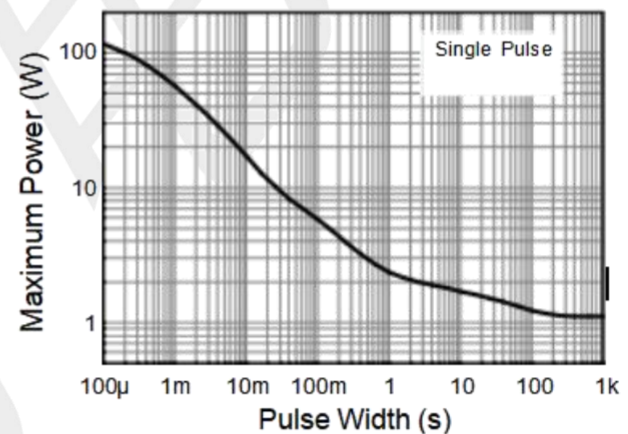
P-channel Safe Operating Area



Derating Curve

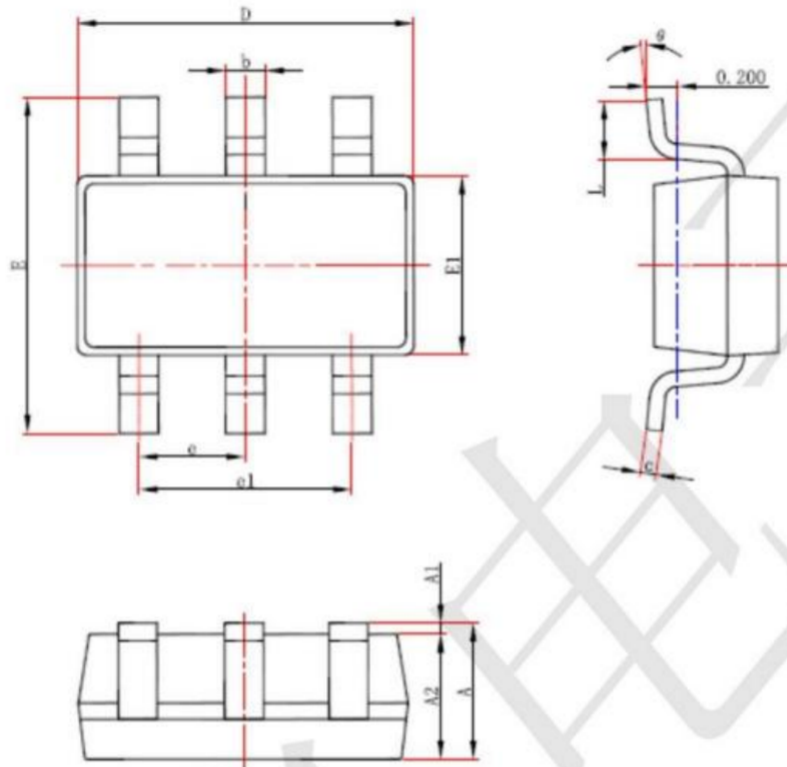


Transient Thermal Impedance



Pulse Power Dissipation

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°