

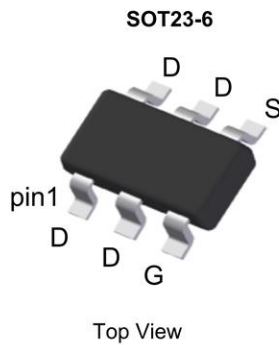
**Product Summary**

- 20V/-7 A
- $R_{DS(ON)} = 22m\Omega(Typ.)@V_{GS}=-4.5V$
- $R_{DS(ON)} = 26m\Omega(Typ.)@V_{GS}=-2.5V$

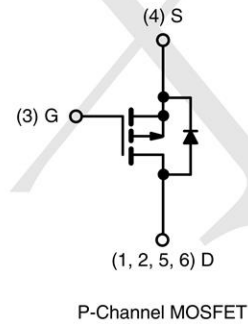
**Application**

- Battery Pack
- Portable Devices

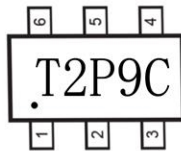
**Package and Pin Configuration**



**Circuit diagram**



Marking:



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

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	$T_C = 25^\circ C$	-7
		$T_C = 100^\circ C$	-4.9
Pulsed Drain Current <sup>(Note 1)</sup>	$I_{DM}$	-26	A
Total Power Dissipation	$P_{DTOT}$	1.56	W
Operating Junction Temperature	$T_J$	150	$^\circ C$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	- 55 to +150	$^\circ C$

**Thermal Characteristic**

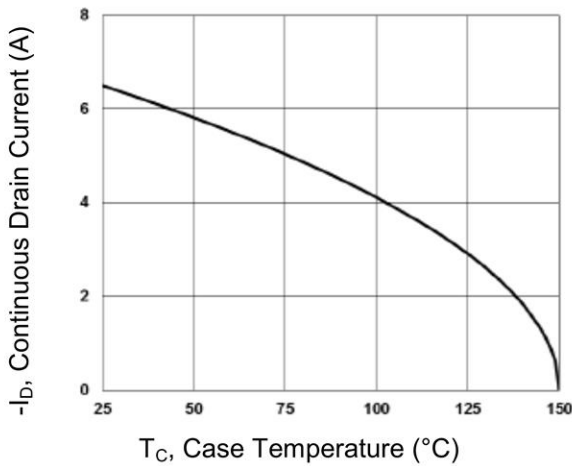
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	80	$^\circ C/W$

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

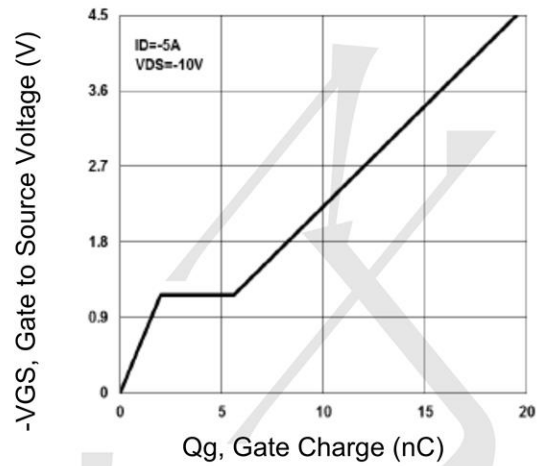
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
<b>Static</b> (Note 2)						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	$BV_{DSS}$	-20	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	$V_{GS(TH)}$	-0.4	--	-1.1	V
Gate Body Leakage	$V_{GS} = \pm 12V, V_{DS} = 0V$	$I_{GSS}$	--	--	$\pm 100$	nA
Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V$	$I_{DSS}$	--	--	-1	$\mu A$
	$V_{DS} = -16V, T_J = 125^\circ\text{C}$		--	--	-10	
Drain-Source On-State Resistance	$V_{GS} = -4.5V, I_D = -5A$	$R_{DS(on)}$	--	22	26	m $\Omega$
	$V_{GS} = -2.5V, I_D = -4A$		--	26	32	
	$V_{GS} = -1.8V, I_D = -3A$		--	32	40	
Forward Transconductance	$V_{DS} = -10V, I_S = -5A$	$g_{fs}$	--	15	--	S
<b>Dynamic</b> (Note 3)						
Total Gate Charge	$V_{DS} = -10V, I_D = -5A,$ $V_{GS} = -4.5V$	$Q_g$	--	19.5	--	nC
Gate-Source Charge		$Q_{gs}$	--	2	--	
Gate-Drain Charge		$Q_{gd}$	--	3.6	--	
Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $F = 1.0\text{MHz}$	$C_{iss}$	--	1670	--	pF
Output Capacitance		$C_{oss}$	--	220	--	
Reverse Transfer Capacitance		$C_{rss}$	--	120	--	
<b>Switching</b>						
Turn-On Delay Time	$V_{DD} = -10V, I_D = -1A,$ $V_{GS} = -4.5V,$ $R_{GEN} = 25\Omega$	$t_{d(on)}$	--	10.4	--	ns
Turn-On Rise Time		$t_r$	--	37.5	--	
Turn-Off Delay Time		$t_{d(off)}$	--	89.1	--	
Turn-Off Fall Time		$t_f$	--	24.6	--	
<b>Source-Drain Diode</b>						
Forward Voltage	$V_{GS} = 0V, I_S = -1A$	$V_{SD}$	--	--	-1	V
Continuous Forward Current	Integral reverse diode in the MOSFET	$I_S$	--	--	-7	A
Pulse Forward Current		$I_{SM}$	--	--	-26	A

Typical Electrical and Thermal Characteristics

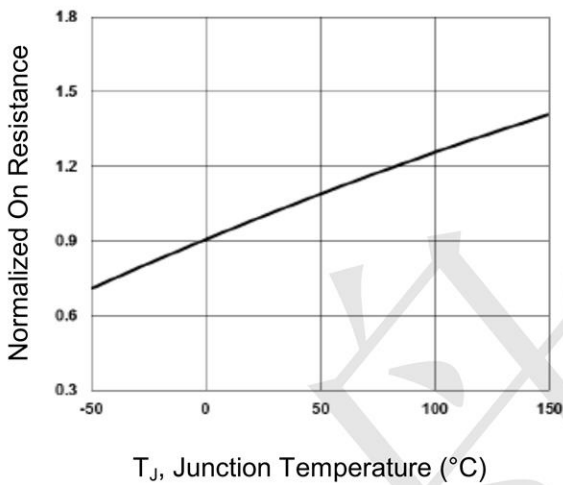
Continuous Drain Current vs.  $T_c$



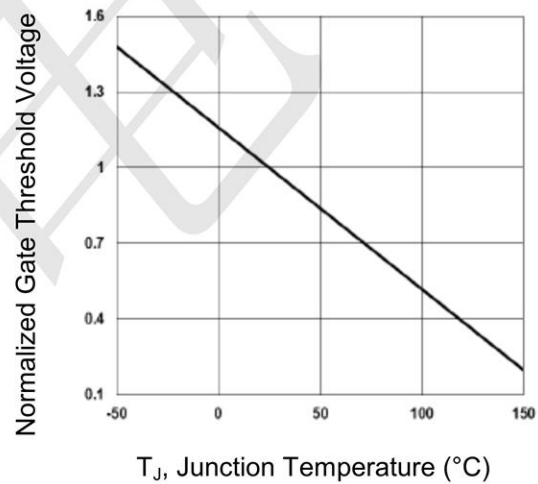
Gate Charge



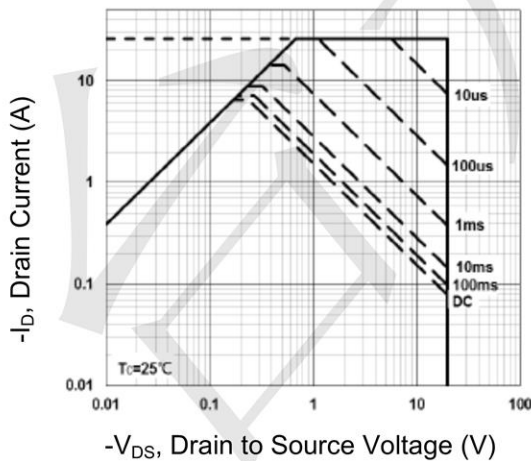
On-Resistance vs. Junction Temperature



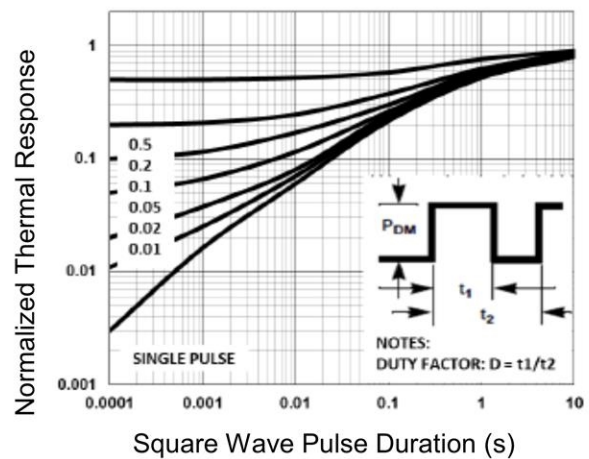
Threshold Voltage vs. Junction Temperature



Maximum Safe Operating Area

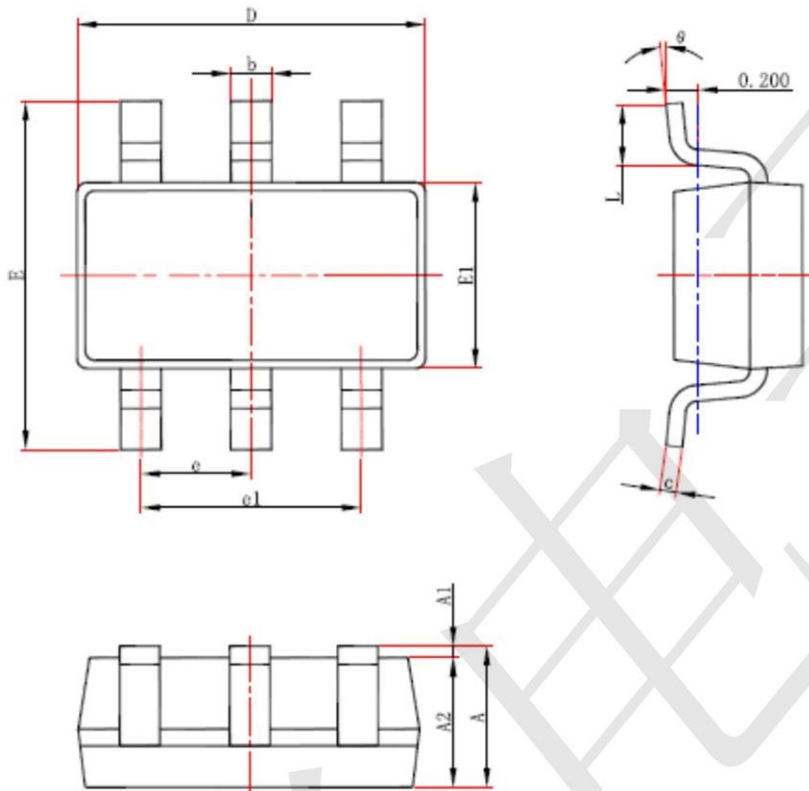


Normalized Thermal Transient Impedance Curve





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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