

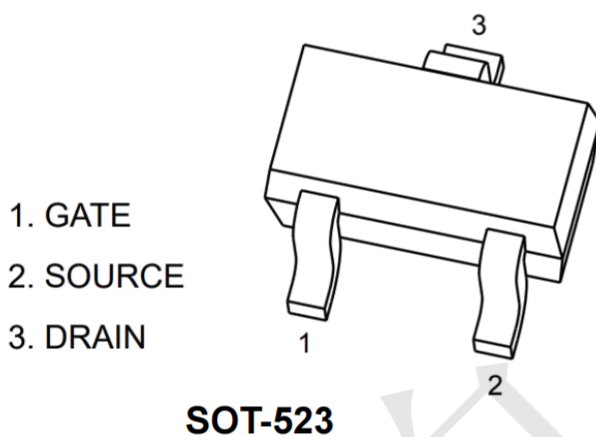
Product Summary

- V_{DS} -20 V
- I_{DS} ($V_{GS}=-4.5V$) -2.8 A
- $R_{DS(ON)}$ ($V_{GS}=-4.5V$) $\leq 90m\Omega$ (Typ)

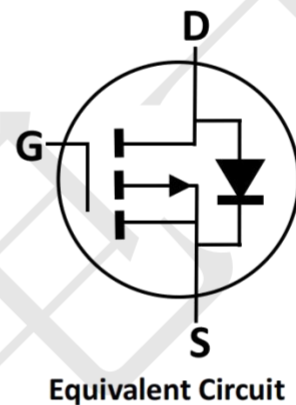
Application

- Interfacing Switching
- Portable equipment and battery
- Load Switch

Package and Pin Configuration



Circuit diagram



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}	± 8	V
Continuous Drain Current	I_D	-2.8	A
Pulsed Drain Current ($t = 100 \mu s$)	I_{DM}	-4.8	A
Maximum Power Dissipation	P_D	0.35	W
Operating Junction Temperature Range	T_J	-55 to +150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}C$

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	357	$^{\circ}C/W$

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

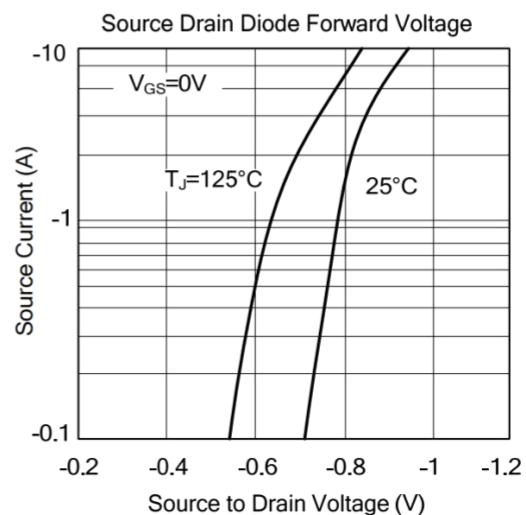
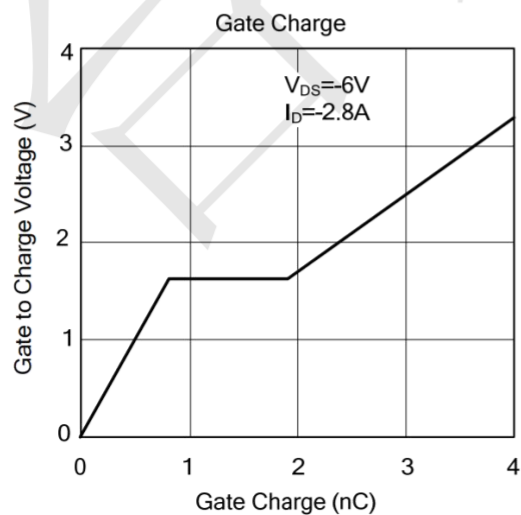
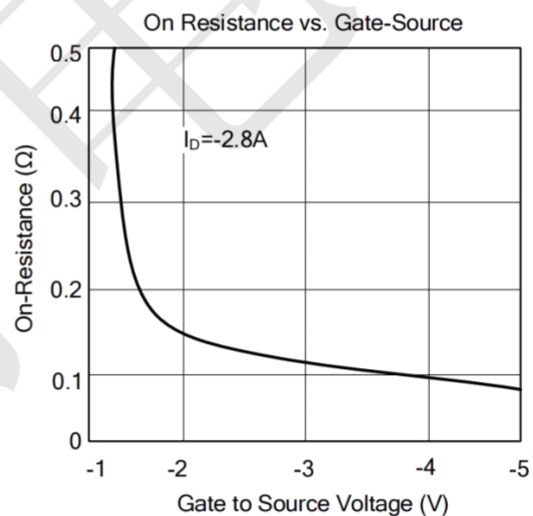
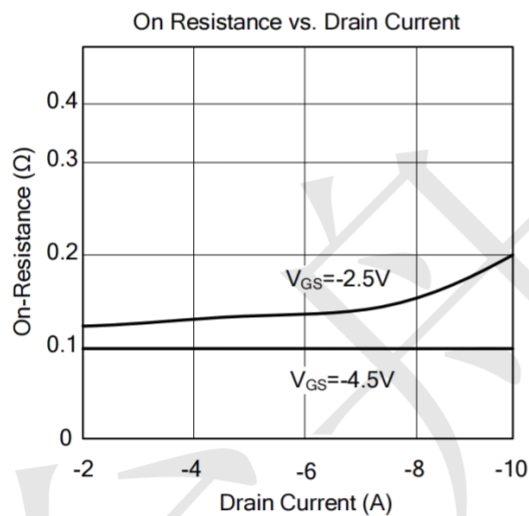
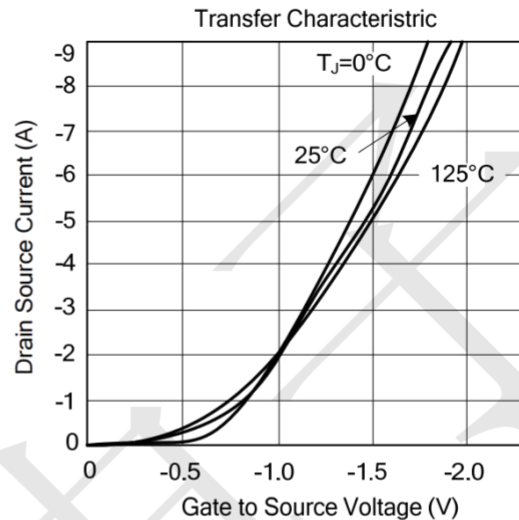
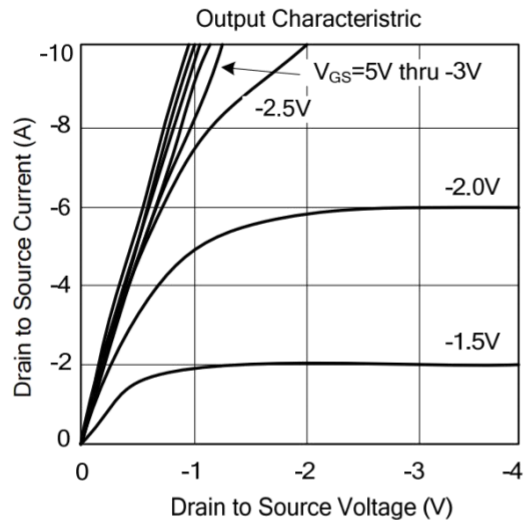
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D= -250\mu A$	BV_{DSS}	-20	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D= -250\mu A$	$V_{GS(th)}$	-0.4	-0.7	-1.0	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}= \pm 8V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}= -20V, V_{GS}=0V$	I_{DSS}	--	-0.1	-1	μA
	$V_{DS}= -20V, T_J=55^{\circ}C$		--	--	-10	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}= -4.5V, I_D= -2.8A$	$R_{DS(on)}$	--	90	120	m Ω
	$V_{GS}= -2.5V, I_D= -2.0A$		--	110	170	
Forward Transconductance (Note 2)	$V_{DS}= -5V, I_D= -2A$	g_{fs}	--	6.0	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS} = -6V,$ $I_D = -2.0A,$ $V_{GS} = -4.5V$	Q_g	--	5.4	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	0.8	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	1.1	--	
Input Capacitance	$V_{DS} = -6V, V_{GS} = 0V,$ $F= 1.0MHz$	C_{iss}	--	446	--	pF
Output Capacitance		C_{oss}	--	126	--	
Reverse Transfer Capacitance		C_{rss}	--	80	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DS} = -6V,$ $I_D= -1A,$ $V_{GS} = -4.5V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	5.0	--	nS
Rise Time (Note 3)		t_r	--	20	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	95	--	
Fall Time (Note 3)		t_f	--	65	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	$V_{GS} = 0V, I_F = -1A$	V_{SD}	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-2.8	A
Pulsed Current (Note 1)		I_{SM}	--	--	-4.8	A

Notes:

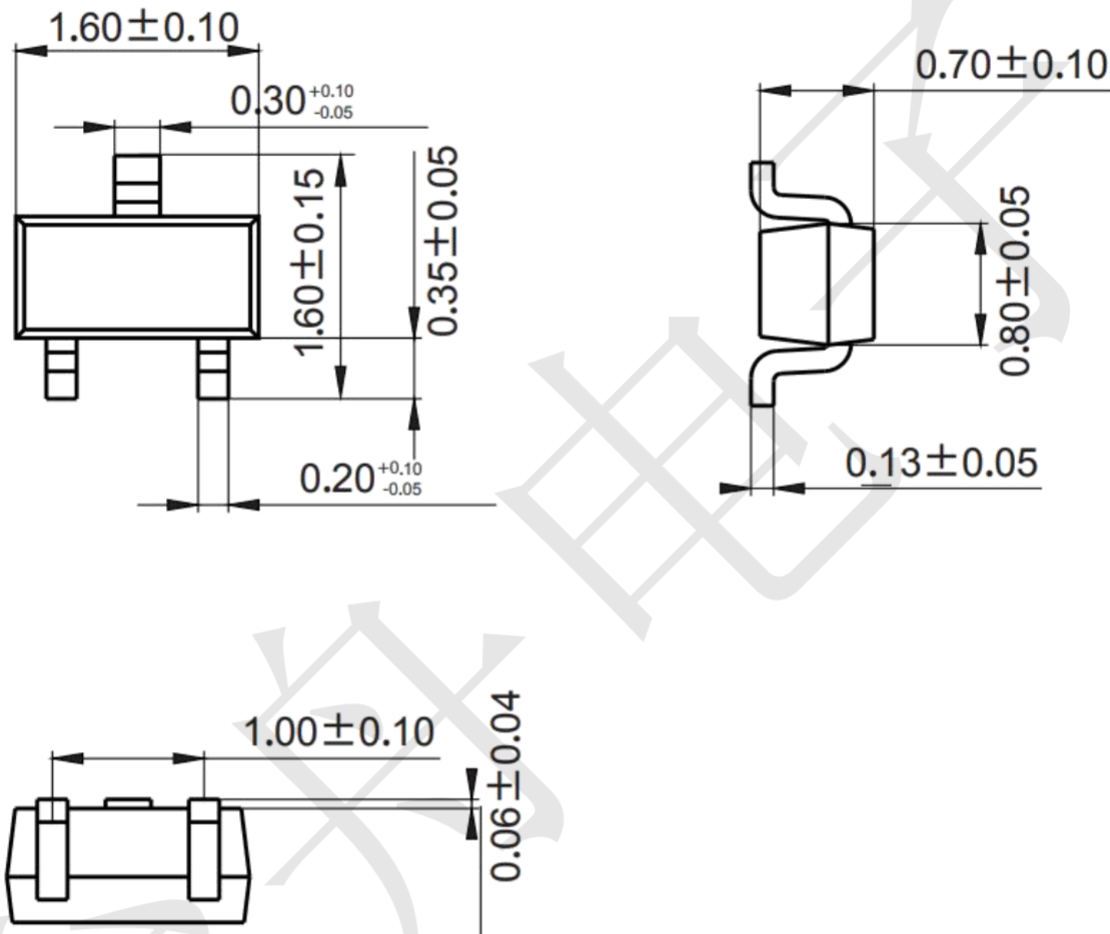
1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS



Package Outline Dimensions (unit: mm)

SOT-523



Mounting Pad Layout (unit: mm)

