

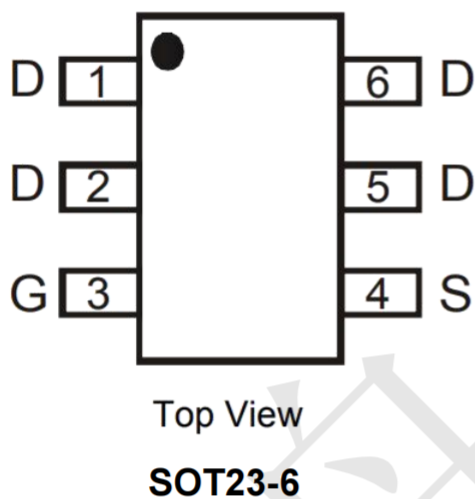
Product Summary

- V_{DS} -30 V
- I_{DS} (at $V_{GS}=-10V$) -8 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <21m Ω (TYP)

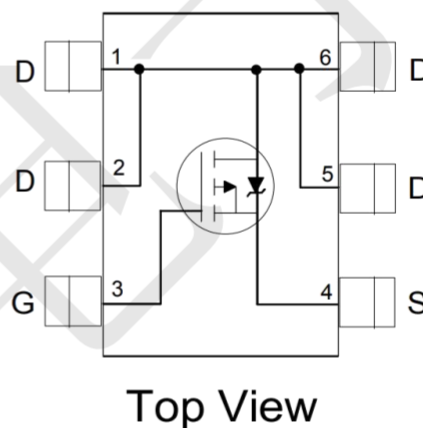
Application

- Interfacing Switching
- Portable equipment and battery
- Load Switch

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-8	A
Pulsed Drain Current (t = 100 μ s)	I_{DM}	-50	A
Maximum Power Dissipation	P_D	2.5	W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	100	°C/W

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

TPSM2605PSC

P-Channel Enhancement Mode MOSFET

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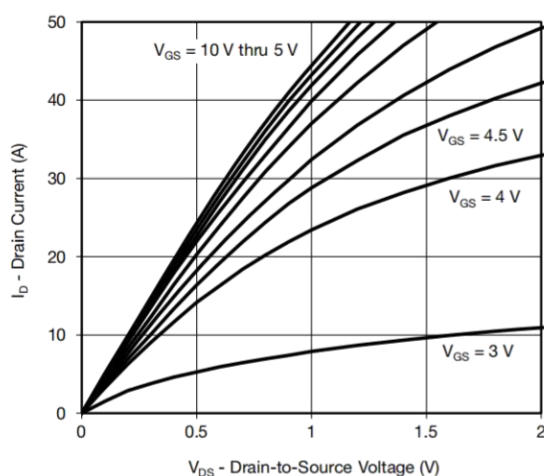
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	BV_{DSS}	-30	--	--	V
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D = -250\mu A$	$V_{GS(th)}$	-1.0	-1.5	-2.5	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}= \pm 20V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}= -30V, V_{GS}=0V$	I_{DSS}	--	-0.1	-1	μA
	$V_{DS}= -30V, T_J=125^{\circ}C$		--	-10	-100	μA
Drain-Source On-State Resistance (Note 1)	$V_{GS}= -10V, I_D= -7A$	$R_{DS(on)}$	--	21	27	m Ω
	$V_{GS}= -4.5V, I_D= -4A$		--	29	37	
Forward Transconductance (Note 2)	$V_{DS}= -15V, I_D= -5A$	g_{fs}	--	16	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	$V_{DS} = -15V,$ $I_D = -5A,$ $V_{GS} = -4.5V$	Q_g	--	12	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	3.5	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	3.8	--	
Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $F = 1.0MHz$	C_{iss}	--	1030	--	pF
Output Capacitance		C_{oss}	--	125	--	
Reverse Transfer Capacitance		C_{rss}	--	100	--	
Switching						
Turn-On Delay Time (Note 3)	$V_{DS} = -10V,$ $I_D = -5A,$ $V_{GS} = -4.5V,$ $R_{GEN} = 10\Omega$	$t_{d(on)}$	--	28	--	nS
Rise Time (Note 3)		t_r	--	16	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	30	--	
Fall Time (Note 3)		t_f	--	10	--	
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	--	--	-8	A
Pulsed Current (Note 1)		I_{SM}	--	--	-50	A

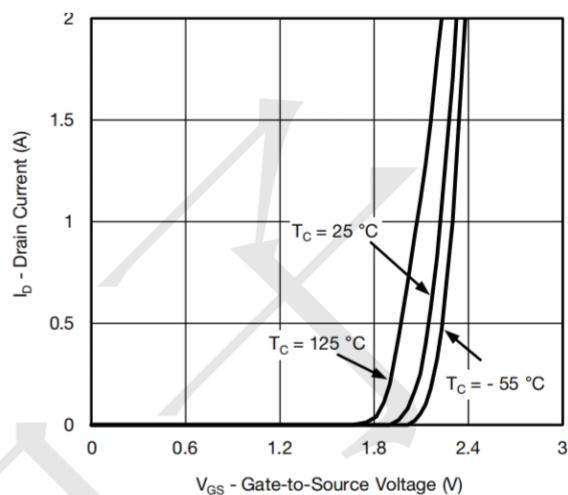
Notes:

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

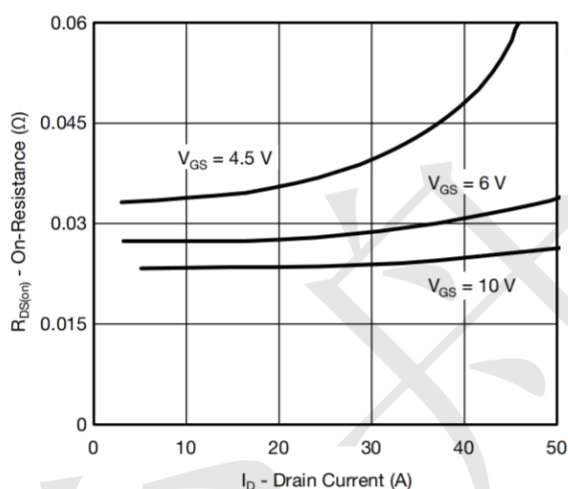
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



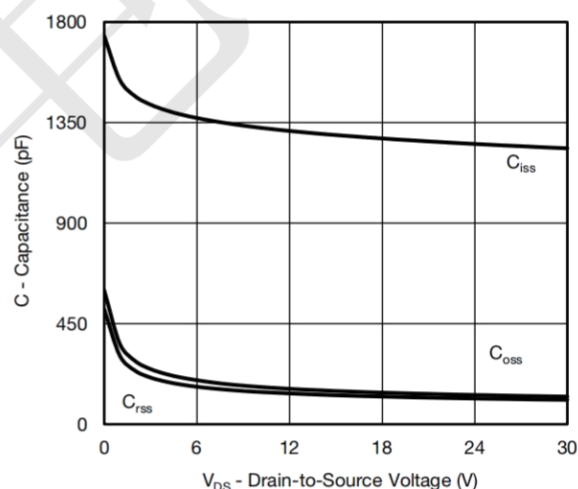
Output Characteristics



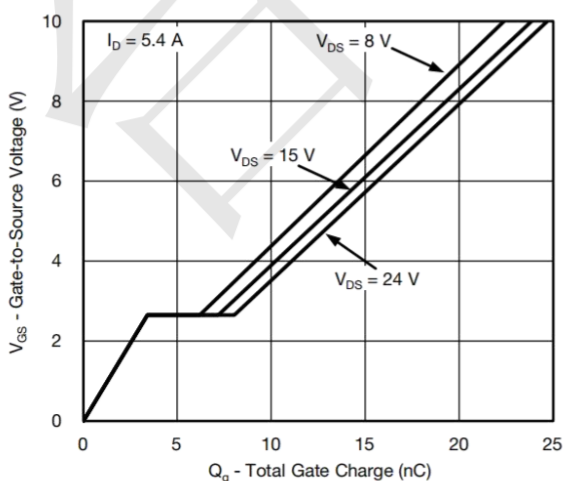
Transfer Characteristics



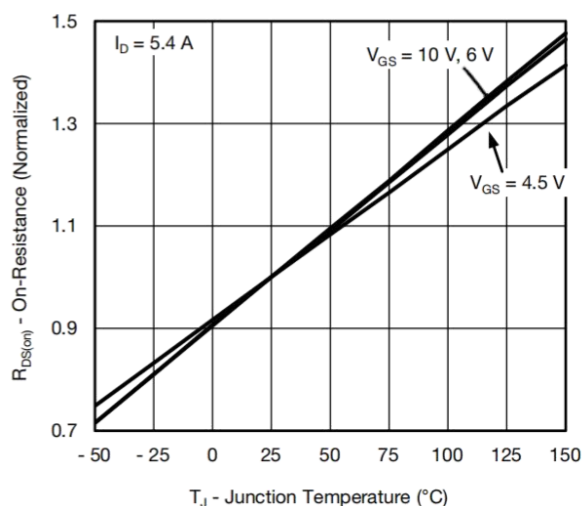
On-Resistance vs. Drain Current



Capacitance



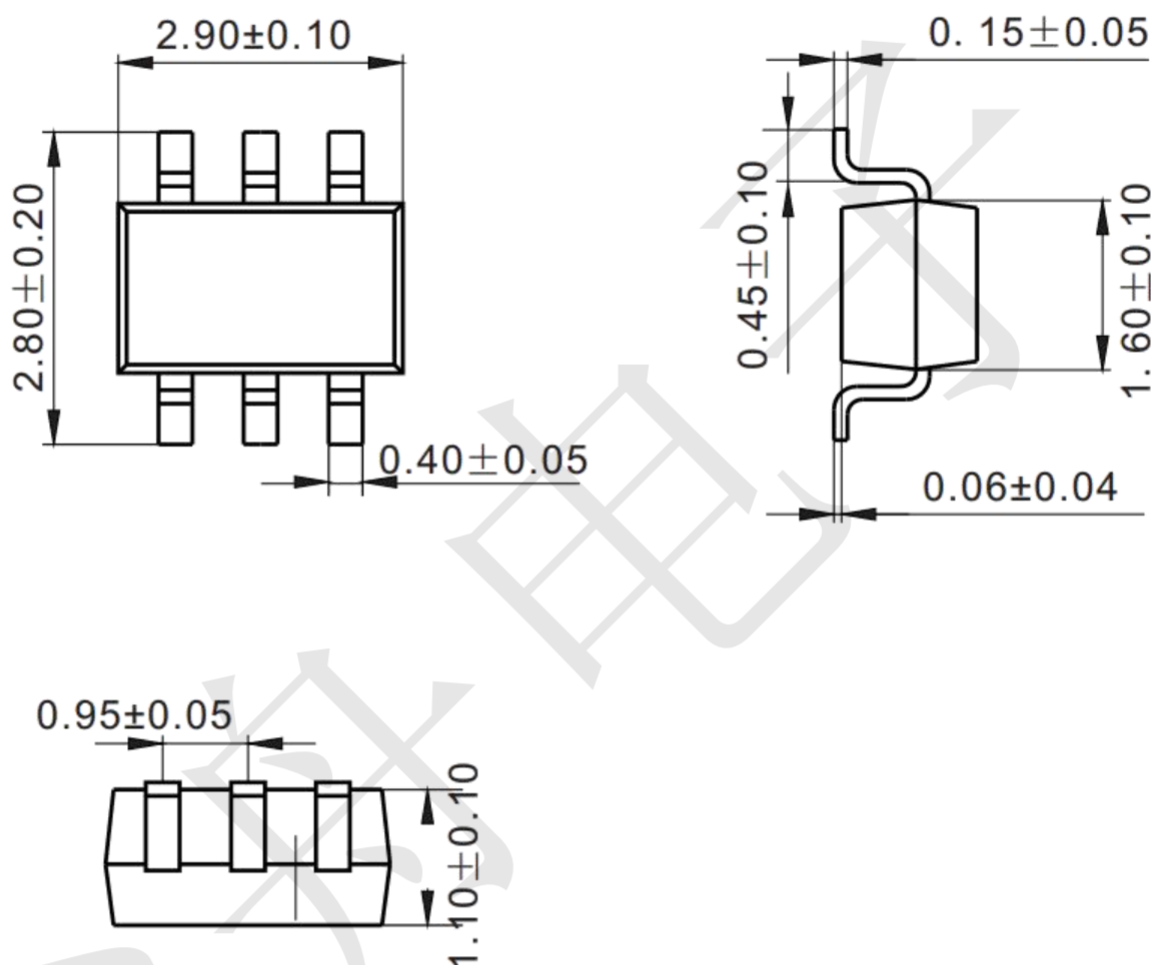
Gate Charge



On-Resistance vs. Junction Temperature

Package information (Unit: mm)

SOT23-6



Mounting Pad Layout (unit: mm)

