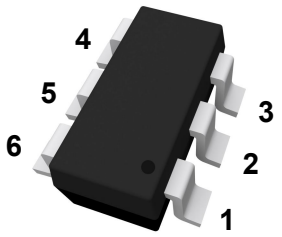
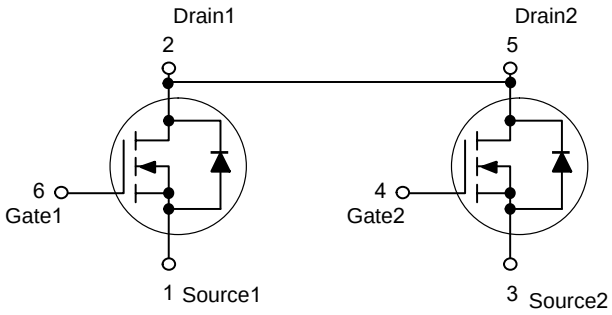
N-Channel Power MOSFET

■ Features

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High Power and Current handing capability



■ **Simplified outline(SOT23-6)**



■ Absolute Maximum Ratings Ta = 25℃

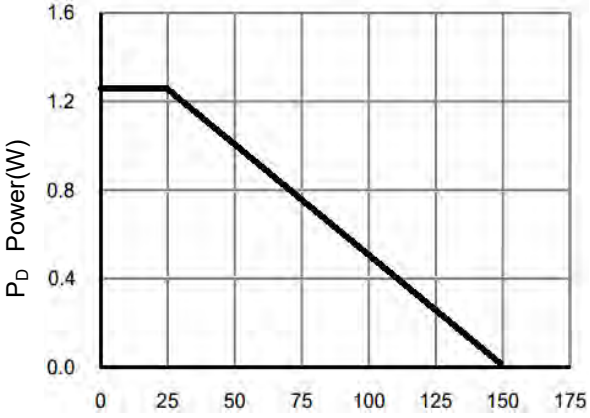
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current Note1	I_{DM}	25	A
Power Dissipation	P_D	1.25	W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55 to 150	°C
Thermal Characteristics			
Parameter	**Symbol**	**Typ.**	**Units**
Maximum Junction-to-Ambient Note2	$R_{\theta JA}$	100	°C/W

■ Electrical Characteristics Ta = 25℃

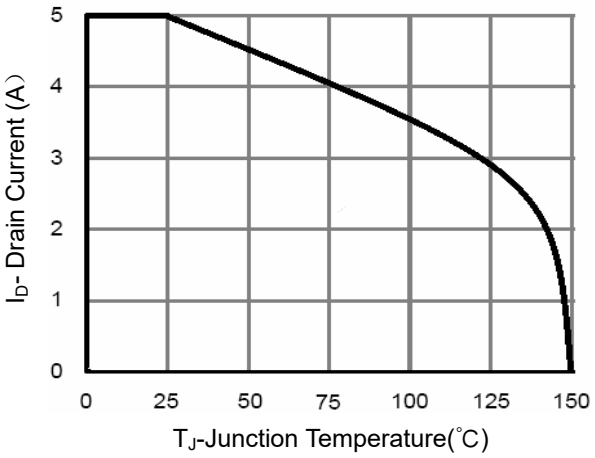
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameters						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V	--	--	±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D= 250μA	0.5	0.7	1.2	V
Static Drain-Source On-Resistance Note3	$R_{DS(ON)}$	V_{GS}=2.5V, I_D=4A	--	25	32	mΩ
		V_{GS}=4.5V, I_D=5A	--	20	25	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=5V, I_D=5A	--	10	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz	--	550	--	pF
Output Capacitance	C_{oss}		--	125	--	pF
Reverse Transfer Capacitance	C_{rss}		--	64	--	pF
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=10V, I_D=5A	--	9.5	--	nC
Gate Source Charge	Q_{gs}		--	2.1	--	nC
Gate Drain Charge	Q_{gd}		--	1.4	--	nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=4V, V_{DD}=10V, I_D=5A R_{GEN}=10Ω	--	9	--	ns
Turn-On Rise Time	t_r		--	10	--	ns
Turn-Off DelayTime	$t_{D(off)}$		--	32	--	ns
Turn-Off Fall Time	t_f		--	24	--	ns
Source-Drain Diode Parameters						
Body Diode Forward Voltage	V_{SD}	I_S=5A, V_{GS}=0V	--	0.8	1.2	V
Body Diode Continuous Source Current	I_S		--	--	5	A

Notes: 1. Repetitive rating: pulsed width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse width ≤ 300μs, duty cycle ≤ 2%

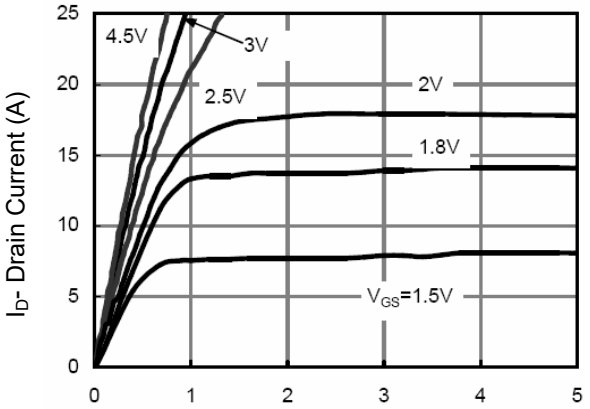
Electrical Characteristics Curves



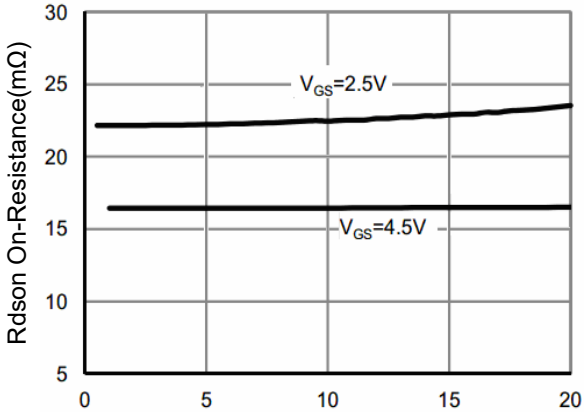
Power Dissipation



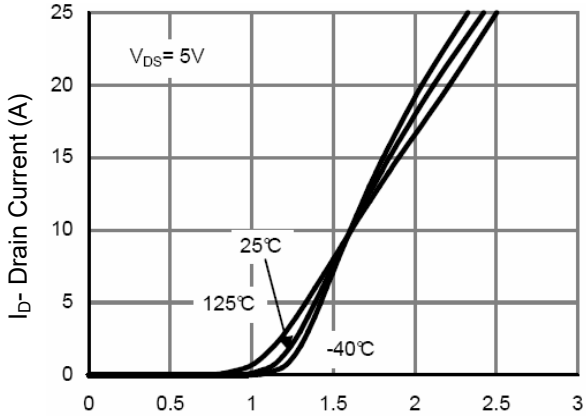
Drain Current



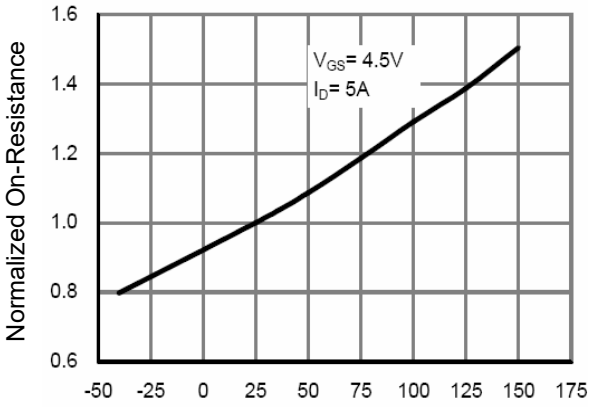
Output Characteristics



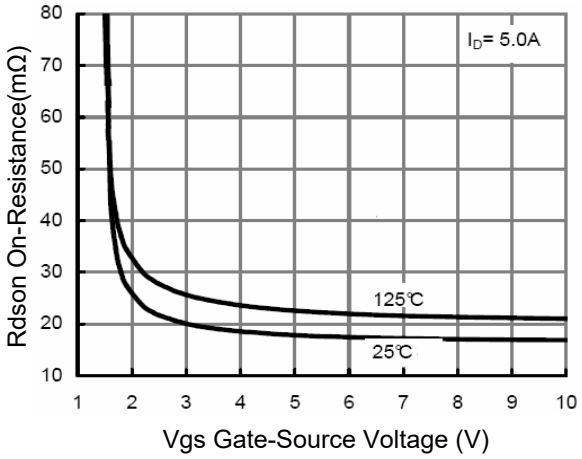
Drain-Source On-Resistance



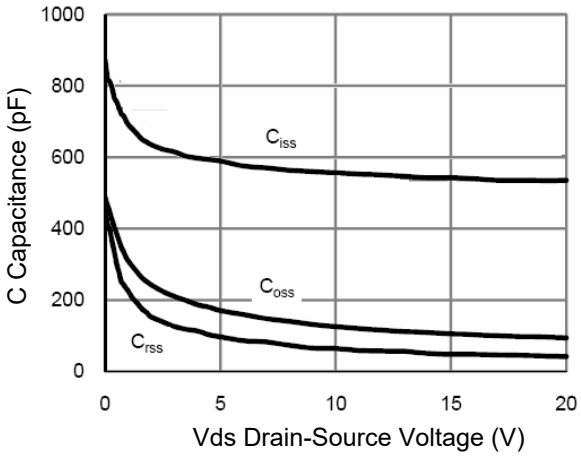
Transfer Characteristics



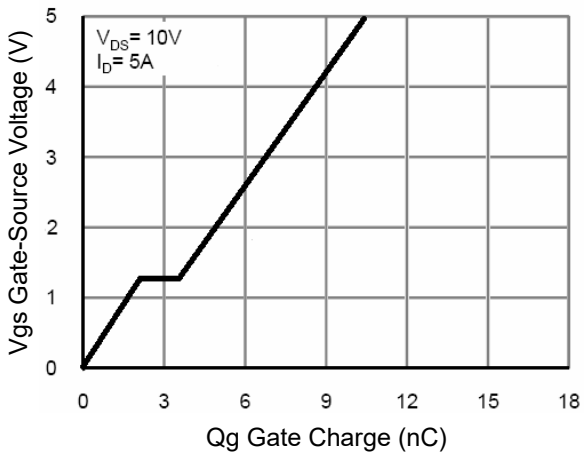
Drain-Source On-Resistance



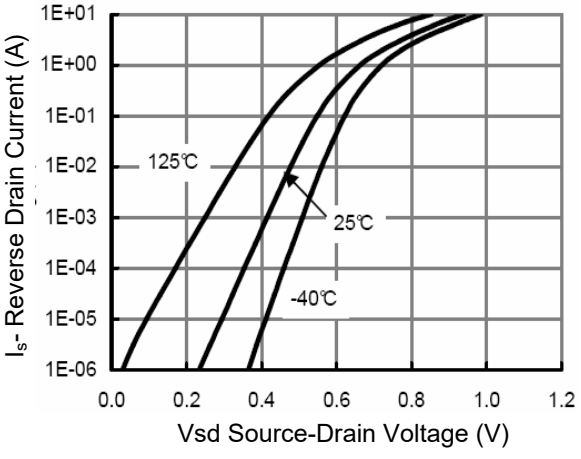
Rdson vs Vgs



Capacitance vs Vds

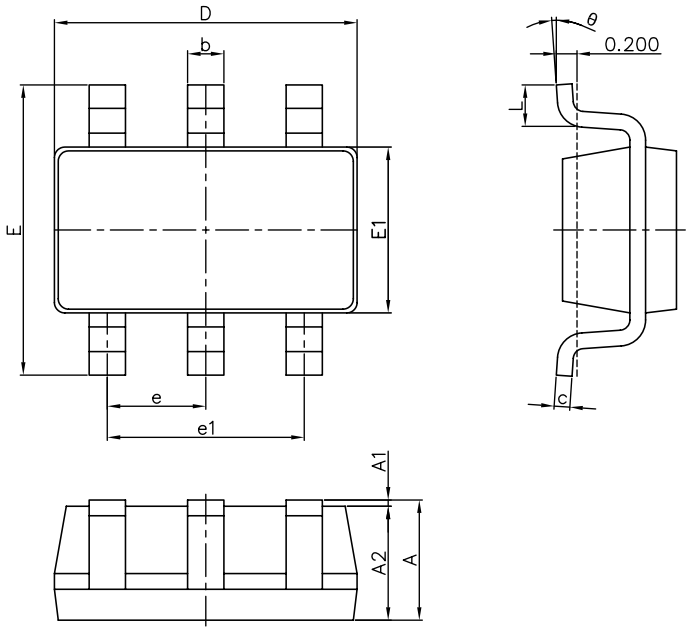


Gate Charge



Source- Drain Diode Forward

■ SOT23-6



DIMENSIONS (mm are the original dimensions)

UNIT	A	A1	A2	b	c	D	E1	E	e	1c	L	θ
mm	1.05 1.25	0.1	1.05 1.15	0.30 0.50	0.10 0.20	2.80 3.02	1.50 1.70	2.65 2.95	0.95 (BSC)	1.80 2.00	0.30 0.60	0° 8°