

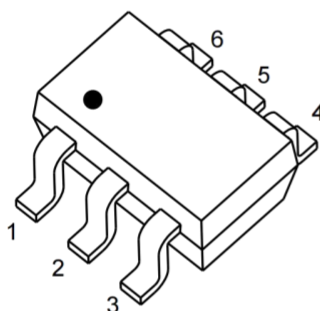
Product Summary

- V_{DS} 30 V
- I_{DS} 800mA
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) $\leq 450m\Omega$
- $R_{DS(ON)}$ (at $V_{GS}=2.5V$) $\leq 650m\Omega$

Application

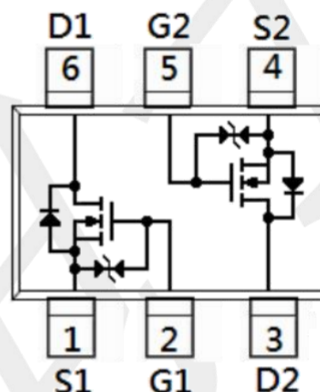
- Reverse Battery protection
- Load switch
- Power management
- Motor Control

Package and Pin Configuration



SOT-363

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}	± 12	V
Continuous Drain Current	I_D	800	mA
Drain Current-Pulsed (Note1)	I_{DM}	2100	mA
Total Power Dissipation	P_{DTOT}	0.35	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
Junction-to-Ambient Thermal Resistance	PCB Mount (Note2)	R_{thJA}	833	°C/W

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. 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 = 250μA	BV _{DSS}	30	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = 250μA	V _{GS(th)}	0.5	0.8	1.2	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±12V	I _{GSS}	--	--	±20	μA
Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} =0V	I _{DSS}	--	--	1	μA
	V _{DS} = 24V, T _J =125°C		--	--	10	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = 4.5V, I _D = 0.5A	R _{DS(on)}	--	350	450	mΩ
	V _{GS} = 2.5V, I _D = 0.5A		--	450	650	
Forward Transconductance (Note 2)	V _{DS} = 4V, I _D = 0.3A	g _{fs}	--	1.1	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V _{DS} = 10V, I _D = 0.25A, V _{GS} = 4.5V	Q _g	--	2.6	--	nC
Gate-Source Charge (Note 3)		Q _{gs}	--	0.9	--	
Gate-Drain Charge (Note 3)		Q _{gd}	--	0.6	--	
Input Capacitance	V _{DS} = 16V, V _{GS} = 0V, F = 1.0MHz	C _{iss}	--	72.9	--	pF
Output Capacitance		C _{oss}	--	18.3	--	
Reverse Transfer Capacitance		C _{rss}	--	7.4	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DD} = 10V, I _D = 0.5A, V _{GS} = 4.5V, R _{GEN} = 10Ω	t _{d(on)}	--	5.5	--	nS
Rise Time (Note 3)		t _r	--	4.1	--	
Turn-Off Delay Time (Note 3)		t _{d(off)}	--	14.5	--	
Fall Time (Note 3)		t _f	--	6.5	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _F = 0.5A	V _{SD}	--	0.8	1.2	V

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

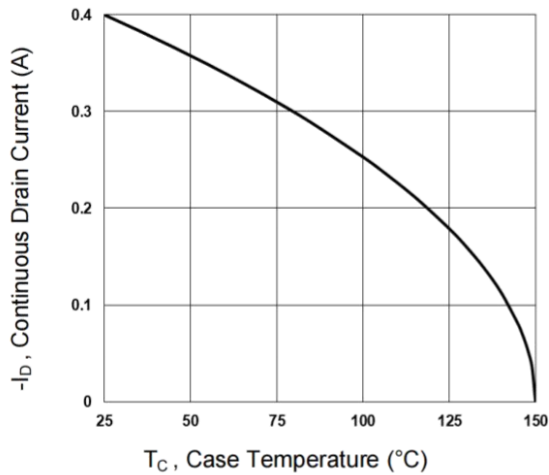


Figure 1. Continuous Drain Current vs. T_c

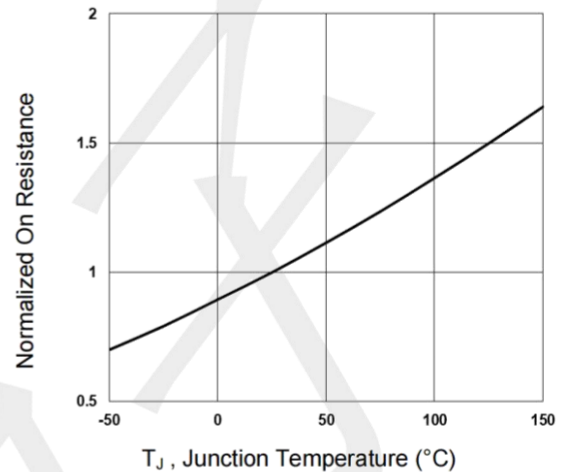


Figure 2. Normalized $R_{DS(on)}$ vs. T_j

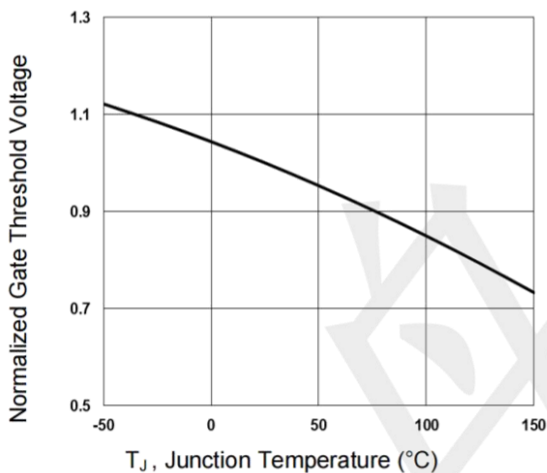


Figure 3. Normalized V_{th} vs. T_j

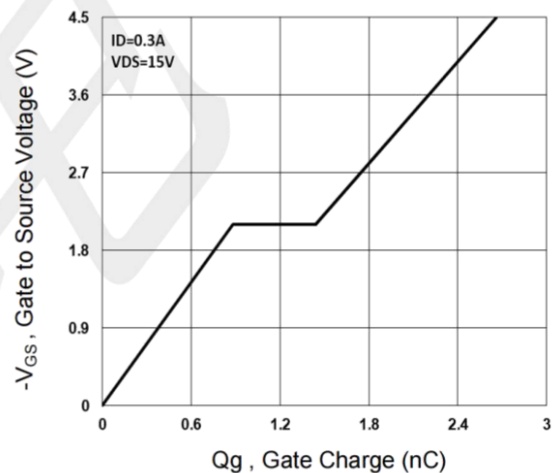


Figure 4. Gate Charge Waveform

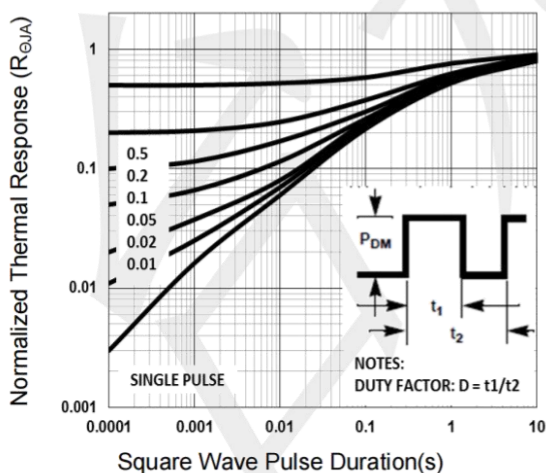


Figure 5. Normalized Transient Response

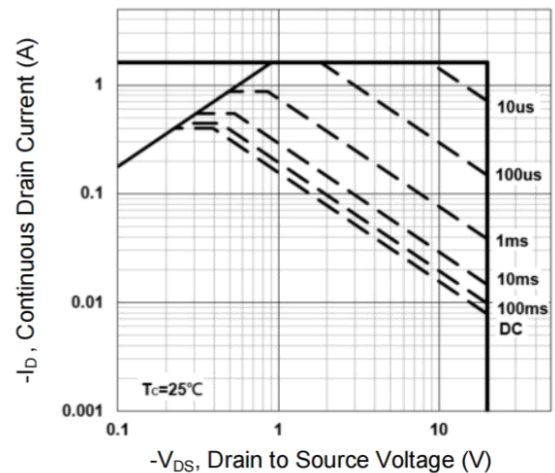
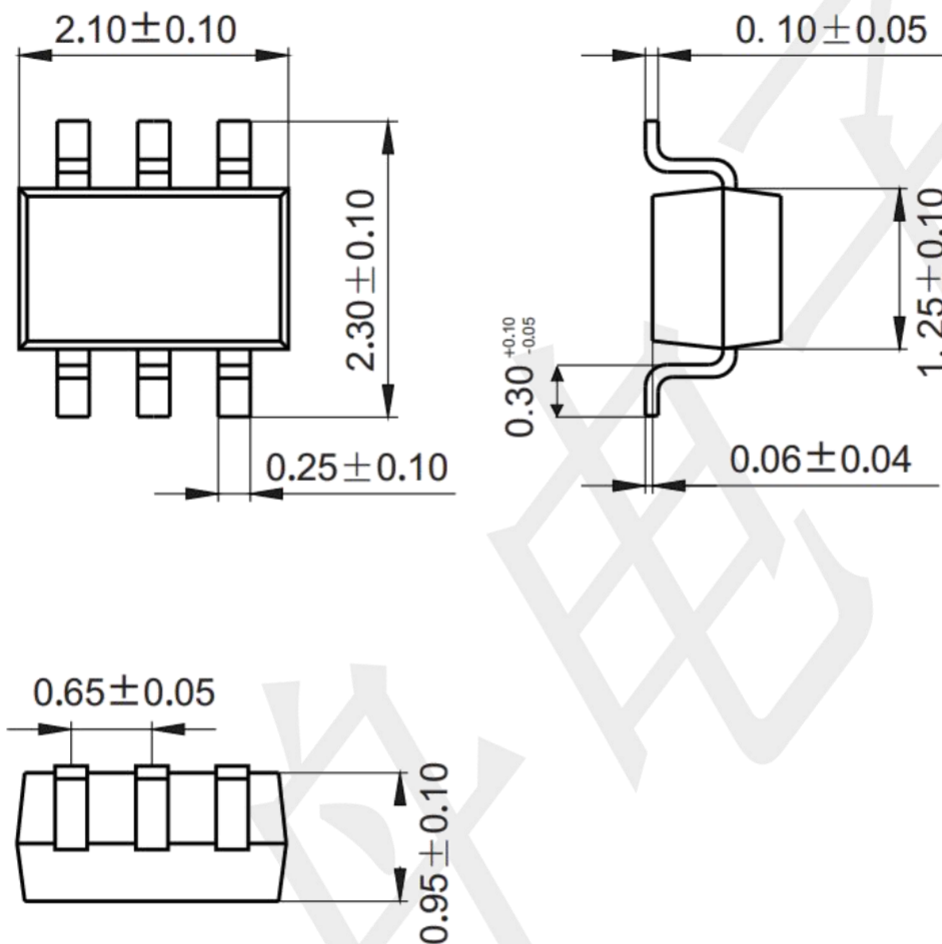


Figure 6. Maximum Safe Operation Area

Package information (Unit: mm)

SOT363



Mounting Pad Layout (unit: mm)

