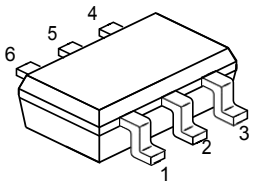
Dual N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- Low on-resistance:V_{DS}=60V,I_D=300mA,$R_{DS(ON)}$≤1.9Ω@V_{GS}=10V
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- High saturation current capability
- Rugged and reliable
- ESD Protection

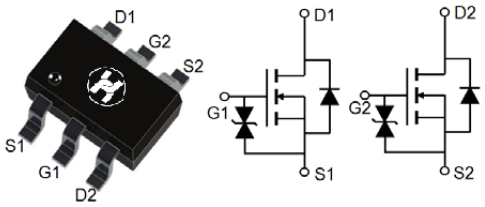
SOT-363



MOSFET1: 1,2,6
MOSFET2: 3,4,5

MECHANICAL DATA

- Case: SOT-363
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.3 grams (approximate)



MAXIMUM RATINGS T_A = 25°C unless otherwise noted

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter		Rating	Unit
Common Ratings (T_A=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±12	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		60	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 150	°C
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested①	T_A=25°C	0.8	A
I_D	Continuous Drain Current	T_A=25°C	0.3	A
		T_A=70°C	0.24	
P_D	Maximum Power Dissipation	T_A=25°C	0.3	W
		T_A=70°C	0.2	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		400	°C/W

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MOSFET ELECTRICAL CHARACTERISTICS T_a=25 ℃ unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current(T_A=25℃)	V_{DS}=60V, V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T_A=125℃)	V_{DS}=48V, V_{GS}=0V	--	--	100	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=10V, I_D=0.3A	--	1.9	3	Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=4.5V, I_D=0.2A	--	2.5	4	Ω
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=30V, V_{GS}=0V, f=1MHz	--	12	--	pF
C_{oss}	Output Capacitance		--	3.2	--	pF
C_{rss}	Reverse Transfer Capacitance		--	0.8	--	pF
Q_g	Total Gate Charge	V_{DS}=30V I_D=0.3A, V_{GS}=10V	--	0.65	--	nC
Q_{gs}	Gate Source Charge		--	0.12	--	nC
Q_{gd}	Gate Drain Charge		--	0.21	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn on Delay Time	V_{DD}=30V, I_D=0.3A, R_G=3.3Ω, V_{GS}=10V	--	4.5	--	ns
t_r	Turn on Rise Time		--	3.1	--	ns
$t_{d(off)}$	Turn Off Delay Time		-	15	--	ns
t_f	Turn Off Fall Time		--	3.3	--	ns
Source Drain Diode Characteristics						
I_{SD}	Source drain current(Body Diode)	T_A=25℃	--	--	0.2	A
V_{SD}	Forward on voltage②	T_j=25℃, I_{SD}=0.2A, V_{GS}=0V	--	0.8	1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width≤300μs, duty cycle≤2%.

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Typical Characteristics

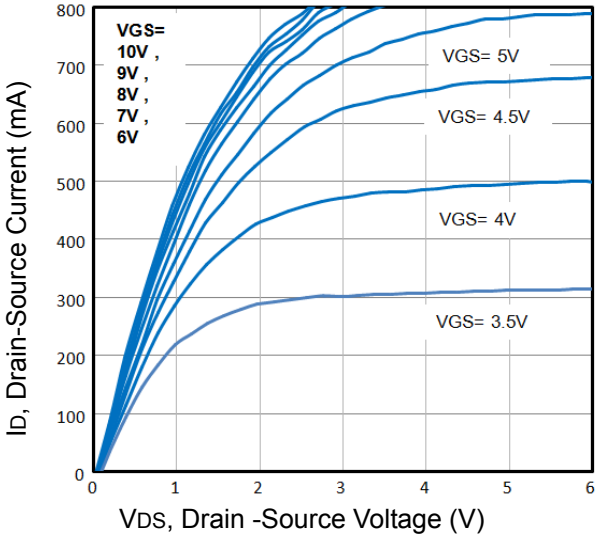

Fig1. Typical Output Characteristics

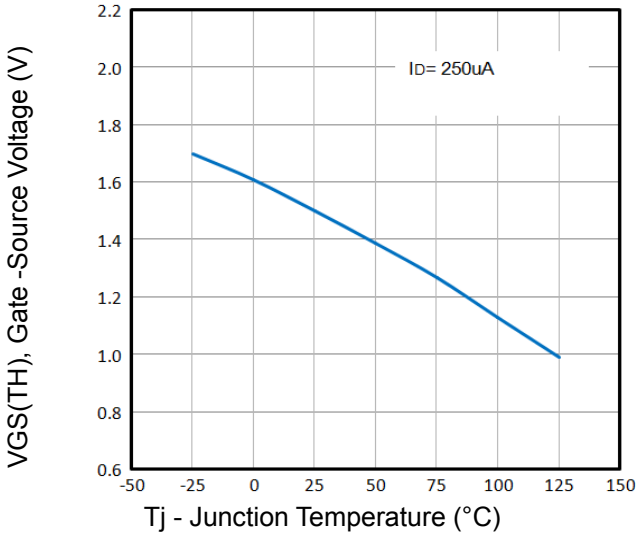

Fig2. Normalized Threshold Voltage Vs. Temperature

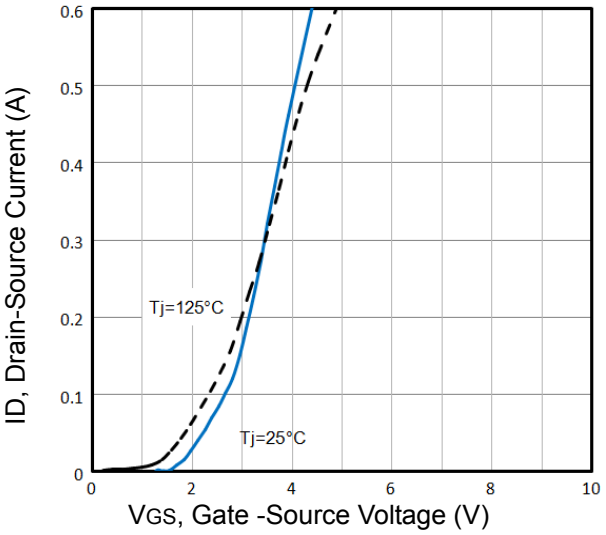

Fig3. Typical Transfer Characteristics

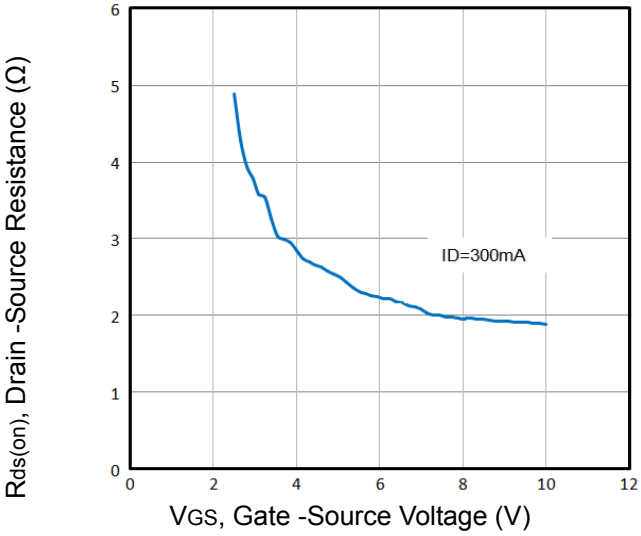

Fig4. Rds(on) vs Gate -Source Voltage

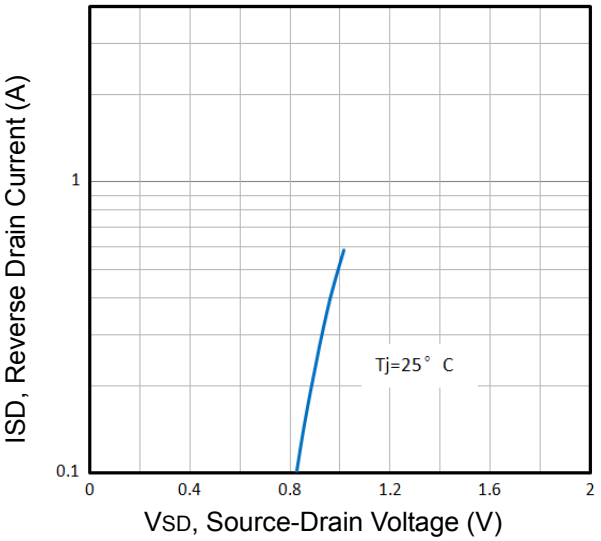

Fig5. Typical Source-Drain Diode Forward Voltage

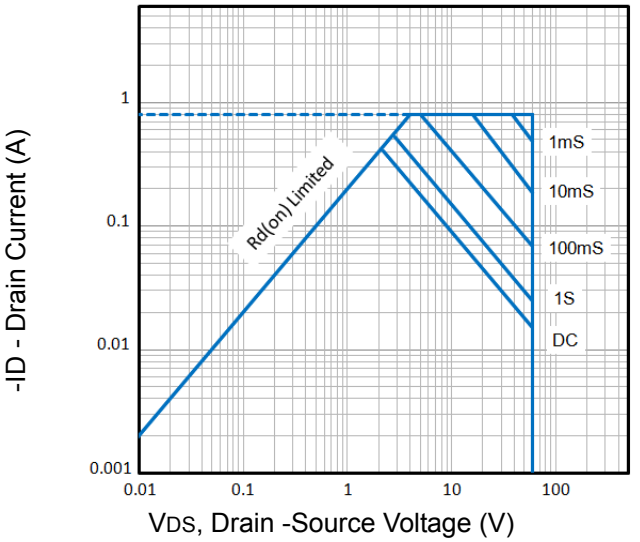

Fig6. Maximum Safe Operating Area

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Typical Characteristics

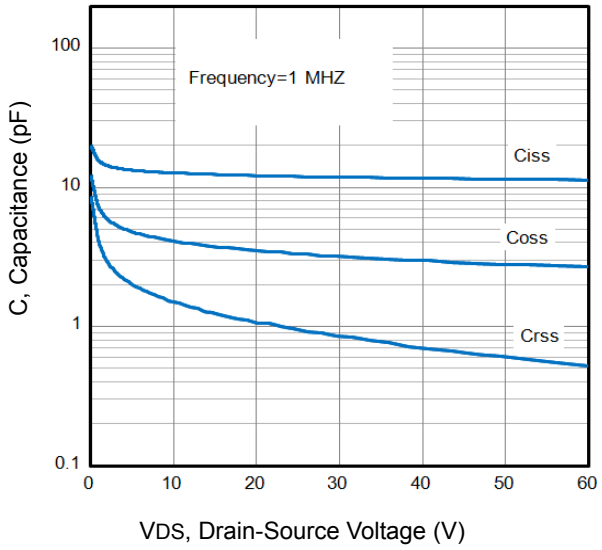

Fig7. Typical Capacitance Vs. Drain-Source Voltage

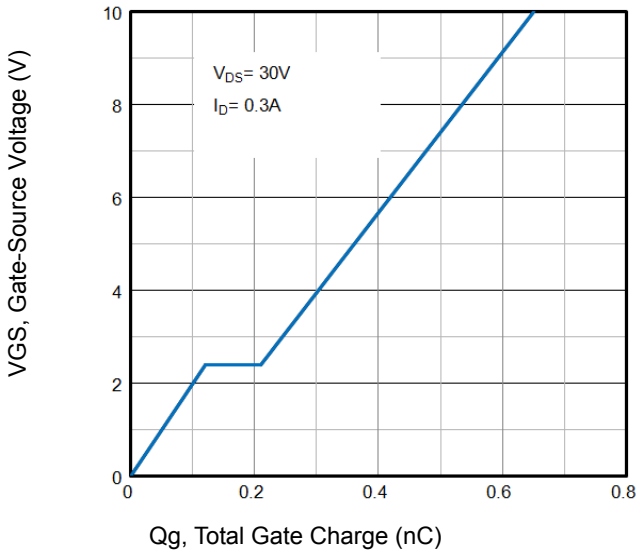

Fig8. Typical Gate Charge Vs. Gate-Source Voltage

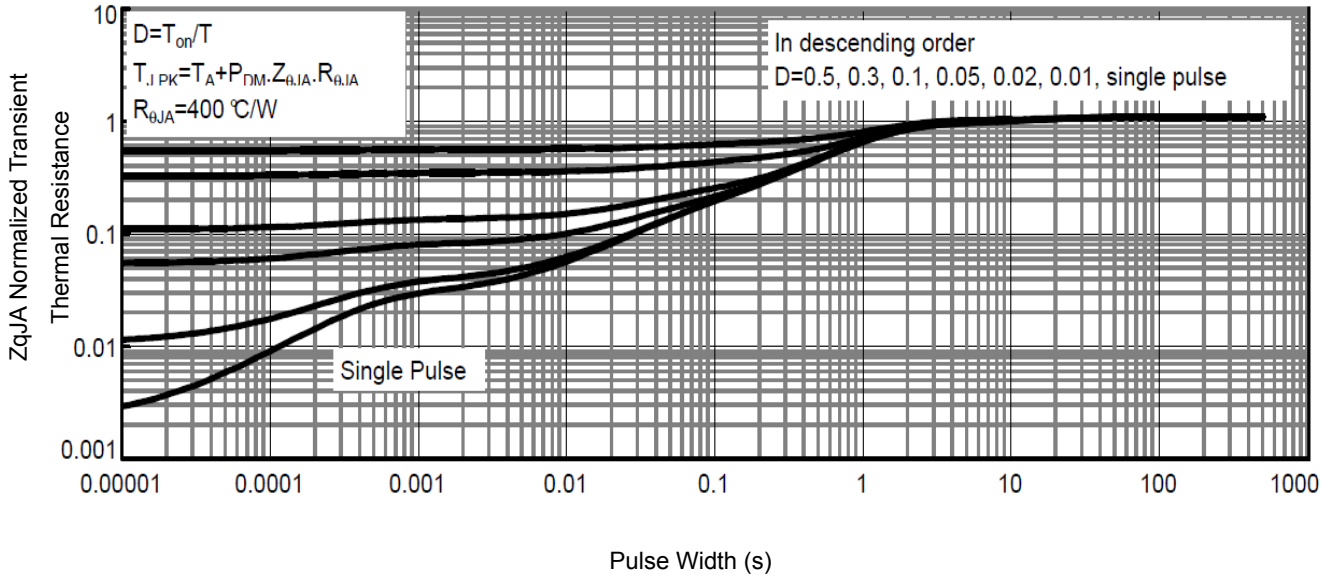

Fig9. Normalized Maximum Transient Thermal Impedance

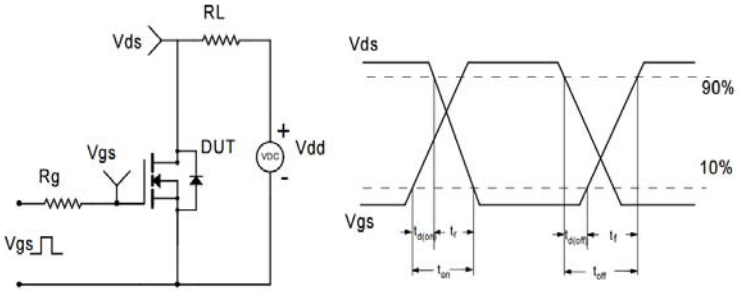

Fig10. Switching Time Test Circuit and waveforms

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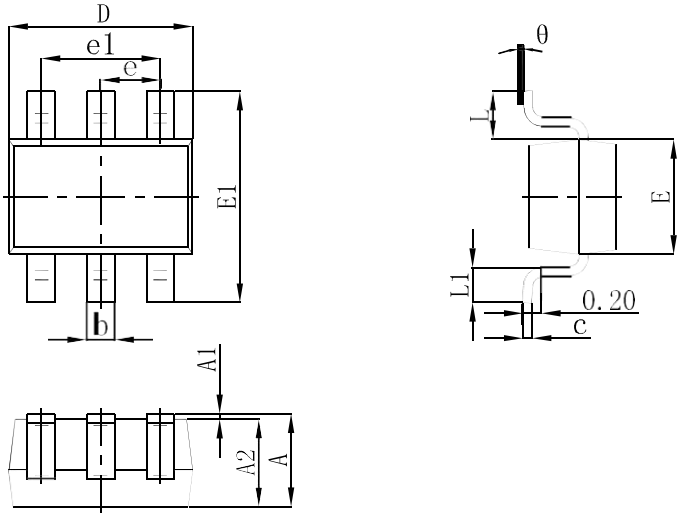
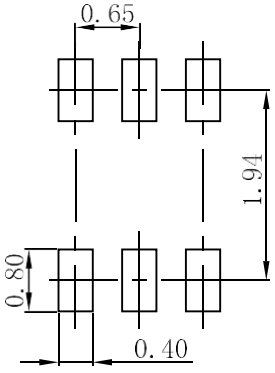
SOT-363 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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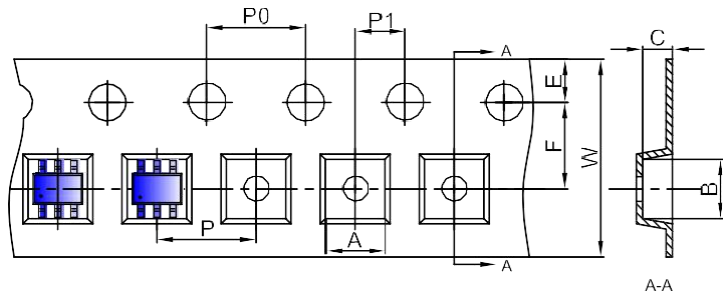
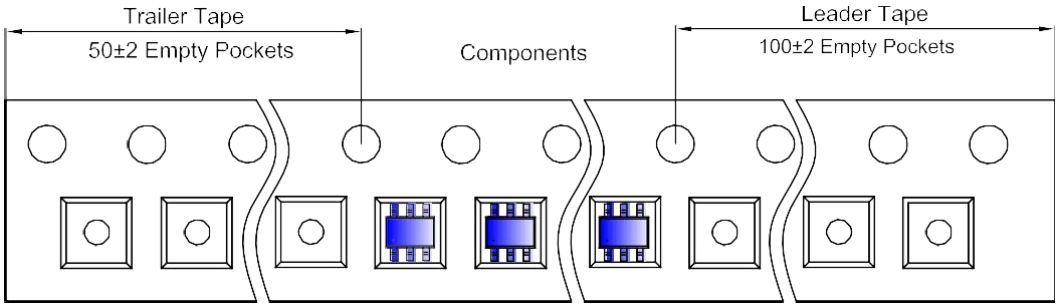
SOT-363 Embossed Carrier Tape

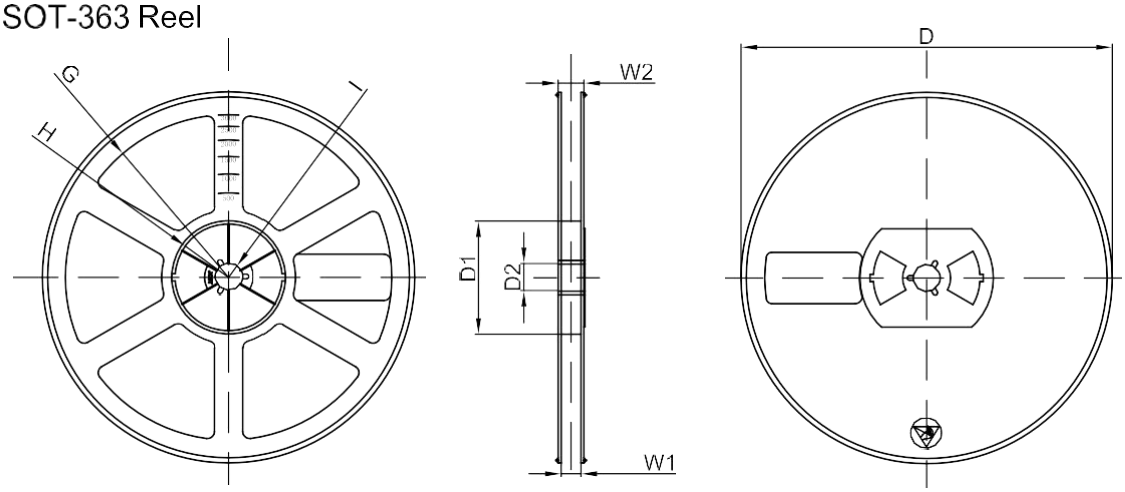


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-363 Tape Leader and Trailer



SOT-363 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30