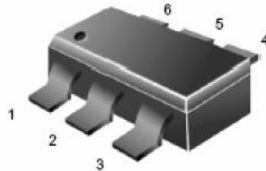
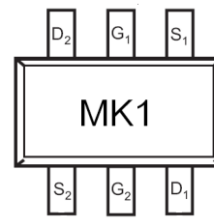
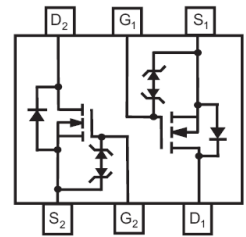


Main Product Characteristics:

V_{DS}	20V
$R_{DS(on)}$	0.4Ω (typ.)
I_D	0.54A


SOT-363

Marking and Pin Assignment

Schematic Diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute max Rating:

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	VDS	20	V
Gate-Source Voltage	VGS	±8	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	0.54	A
	I_{DM}	1.5	A
Maximum Power Dissipation	P_D	0.2	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C

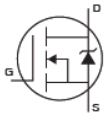
Thermal Resistance

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	625	°C/W
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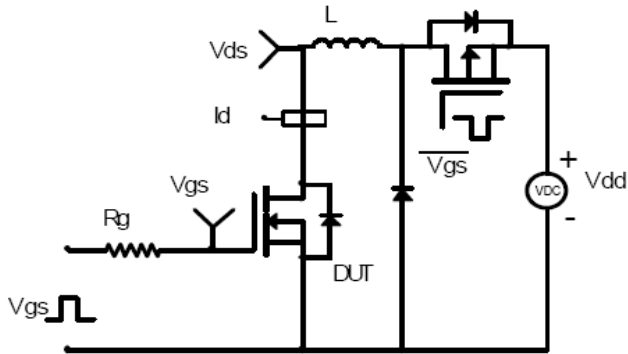
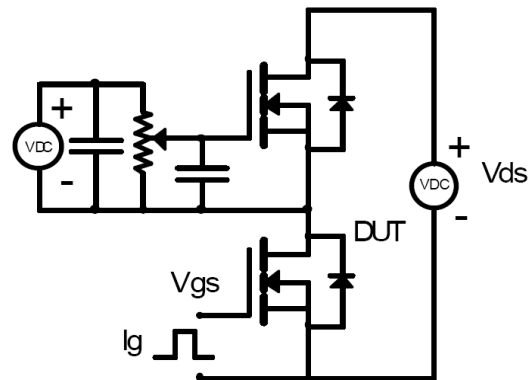
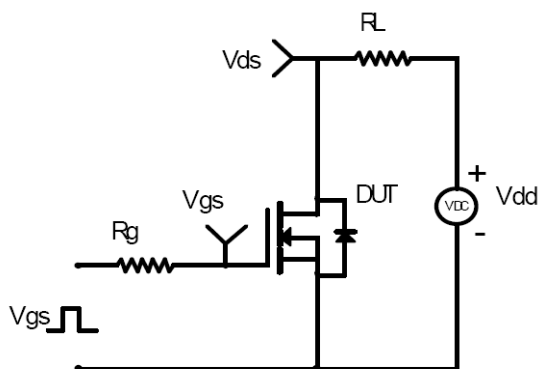
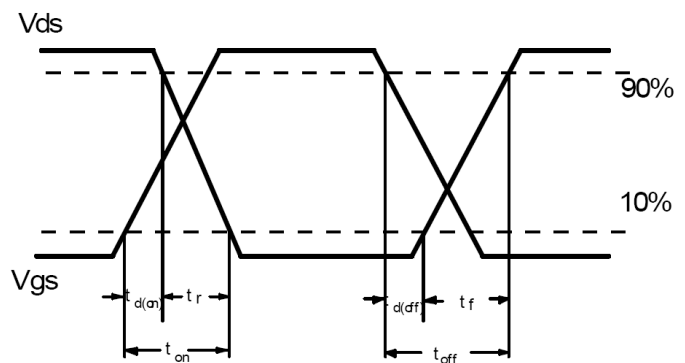
Electrical Characteristics @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	20	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	0.4	0.55	Ω	V _{GS} =4.5V, I _D = 0.54A
		—	0.5	0.7	Ω	V _{GS} =2.5V, I _D = 0.5A
		—	0.7	0.9	Ω	V _{GS} =1.8V, I _D = 0.35A
V _{GS(th)}	Gate threshold voltage	0.5	—	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 20V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	±1	μA	V _{GS} = ±4.5V
		—	—	±10		V _{GS} = ±8V
C _{iss}	Input capacitance	—	87	—	pF	V _{GS} = 0V
C _{oss}	Output capacitance	—	17	—		V _{DS} = 16V
C _{rss}	Reverse transfer capacitance	—	10	—		f = 1MHz

Source-Drain Ratings and Characteristics

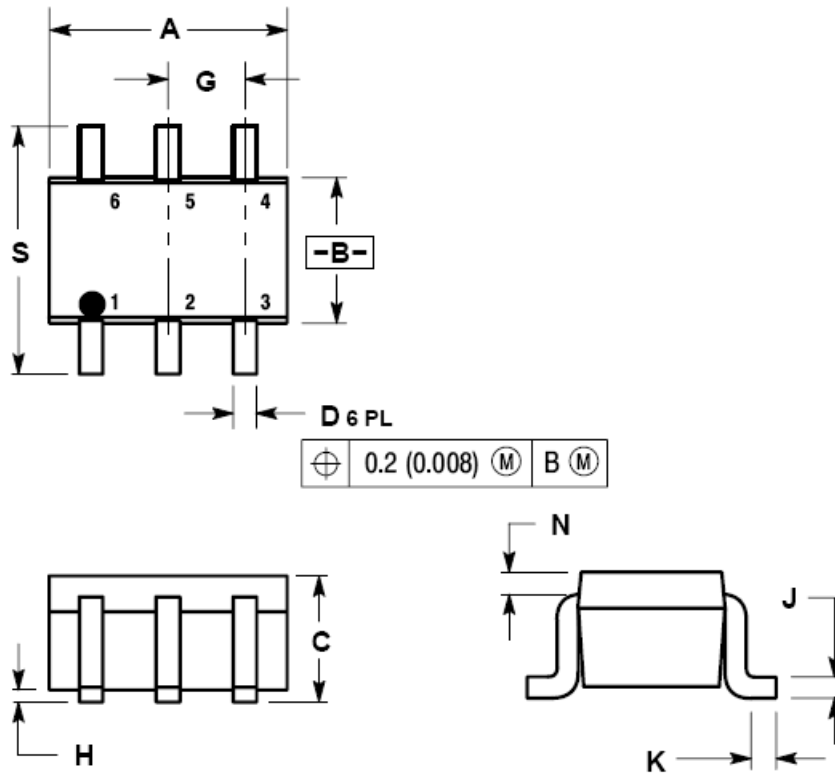
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	0.54	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	1.5	A	
V _{SD}	Diode Forward Voltage	—	—	1.3	V	

Test circuits and Waveforms

EAS Test Circuit

Gate charge test circuit

Switching Time Test Circuit

Switching Waveforms


Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$

Mechanical Data:
SOT-363(SC-88) PACKAGE OUTLINE DIMENSION

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

Ordering and Marking Information**Device Marking: MK1**

Package (Available)
SOT-363(SC-88)
Operating Temperature Range
C : -55 to 150 °C

Devices per Unit

Package Type	Units/Tape	Tapes/Inner Box	Units/Inner Box	Inner Boxes/Carton Box	Units/Carton Box
SOT-363	3000	10	30000	12	360000

Reliability Test Program

Test Item	Conditions	Duration	Sample Size
High Temperature Reverse Bias(HTRB)	$T_j=125^{\circ}\text{C}$ to 150°C @ 80% of Max $V_{DSS}/V_{CES}/V_R$	168 hours 500 hours 1000 hours	3 lots x 77 devices
High Temperature Gate Bias(HTGB)	$T_j=150^{\circ}\text{C}$ @ 100% of Max V_{GSS}	168 hours 500 hours 1000 hours	3 lots x 77 devices

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