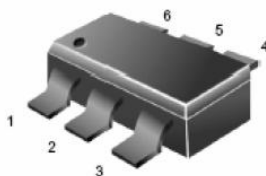
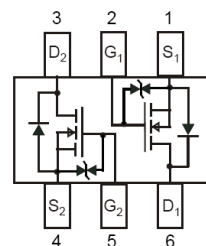


**Main Product Characteristics:**

$V_{DSS}$	60V
$R_{DS(on)}$	7.5ohm(max.)
$I_D$	A


**SOT-363**

**Schematic diagram**
**Features and Benefits:**

- Advanced trench 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 trench 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	60	V
Gate-Source Voltage	VGS	±20	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	$I_D$	0.115	A
	$I_{DM}$	0.8	A
Maximum Power Dissipation	$P_D$	0.38	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	°C

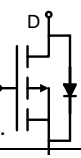
**Thermal Resistance**

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	328	°C/W
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**Electrical Characterizes** @ $T_A=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 1$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.5A$			7.5	$\Omega$
		$V_{GS}=5V, I_D=0.05A$			7.5	
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_D=0.2A$	0.08			S
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V,$ $F=1.0\text{MHz}$		30		PF
Output Capacitance	$C_{oss}$			6		PF
Reverse Transfer Capacitance	$C_{rss}$			3		PF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=0.2A,$			20	nS
Turn-Off Delay Time	$t_{d(off)}$	$V_{GS}=10V, R_{GEN}=10\Omega$			40	nS

**Source-Drain Ratings and Characteristics**

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	0.115	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode)	—	—	0.8	A	
$V_{SD}$	Diode Forward Voltage	—	—	1.3	V	$I_S=0.2A, V_{GS}=0V$

**NOTES:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

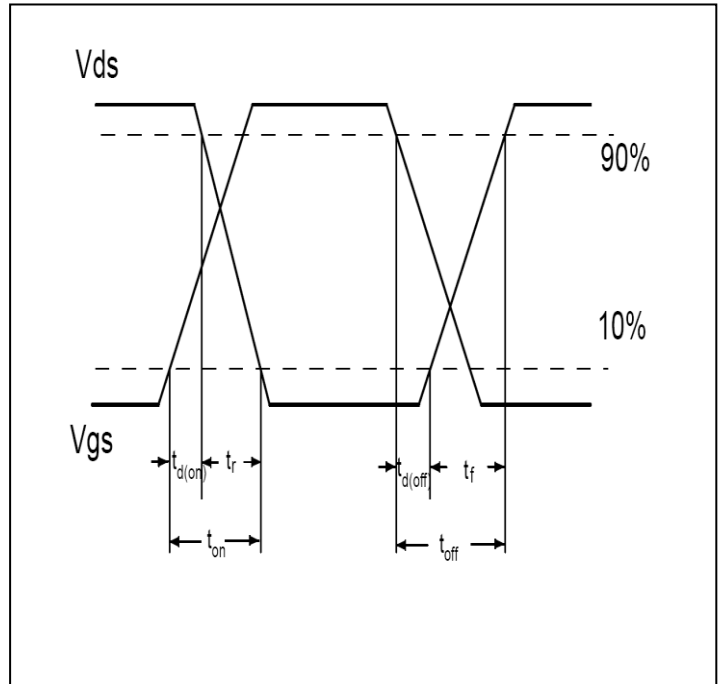
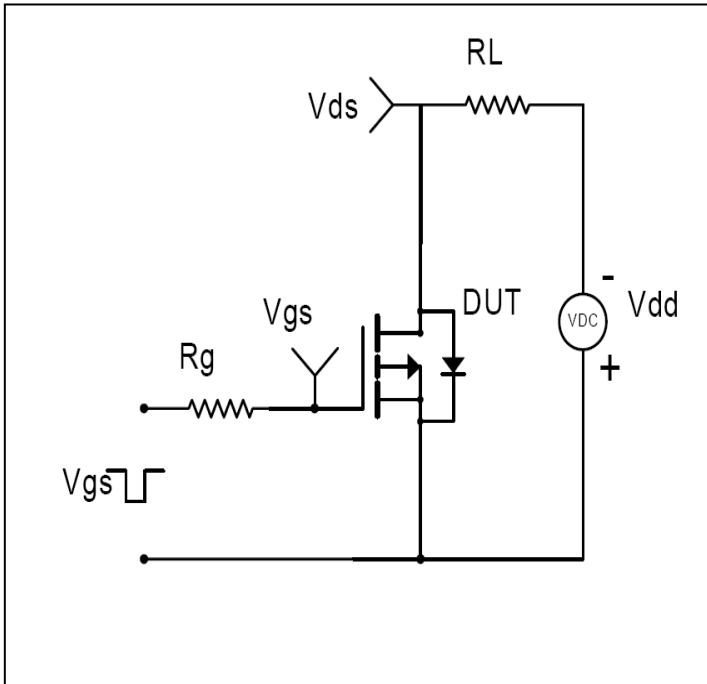


Figure 1: Switching Test Circuit

Figure 2: Switching Waveforms

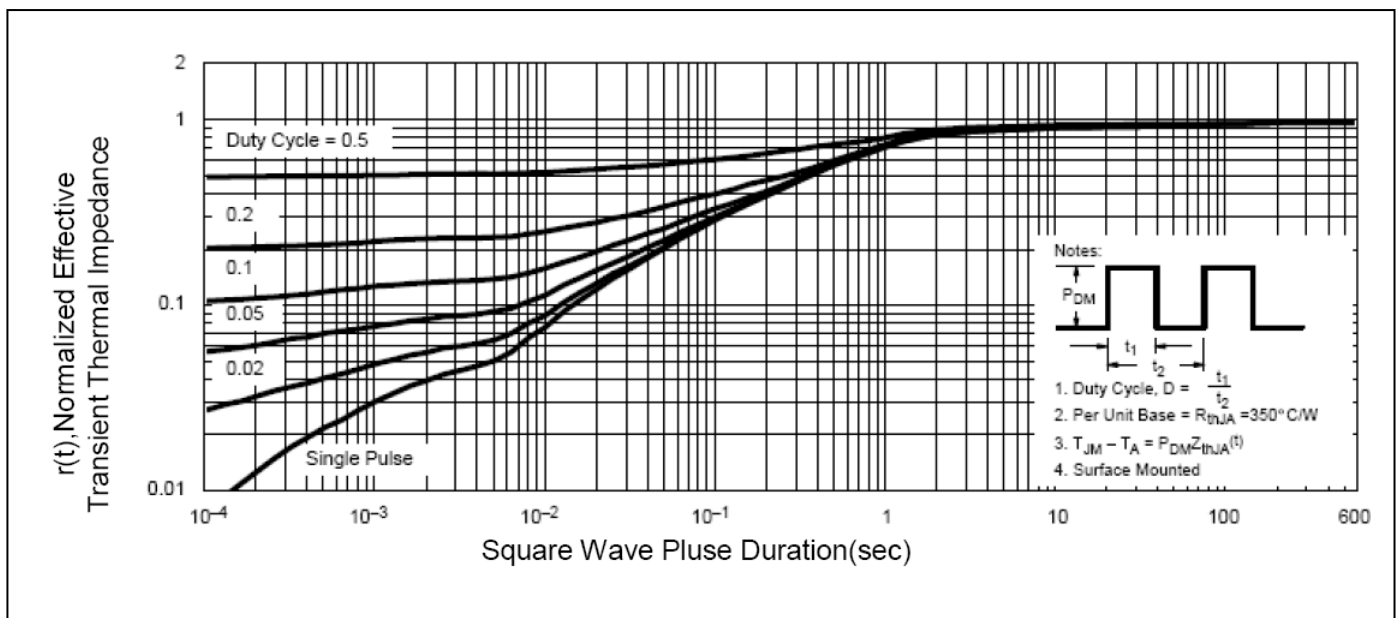
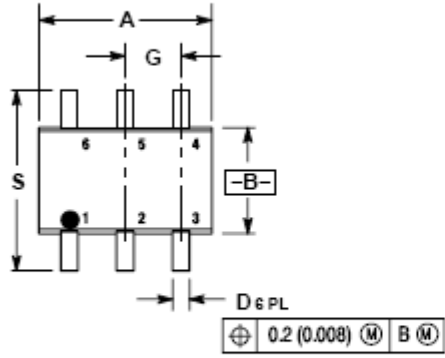


Figure3. Maximum Effective Transient Thermal Impedance, Junction-to-Case

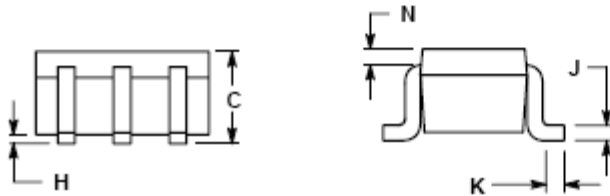
**Mechanical Data:**

**SC-88 (SOT-363)  
CASE 419B-02  
ISSUE T**



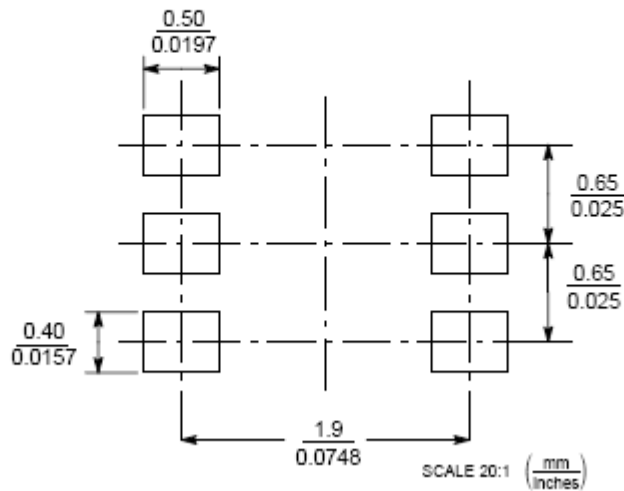
- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.  
 3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

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



- STYLE 1:  
 PIN 1. EMITTER 2  
 2. BASE 2  
 3. COLLECTOR 1  
 4. EMITTER 1  
 5. BASE 1  
 6. COLLECTOR 2

**SOLDERING FOOTPRINT\***



**NOTES:**

1. Dimensions are inclusive of plating
2. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
3. Dimension L is measured in gauge plane.
4. Controlling dimension is millimeter; converted inch dimensions are not necessarily exact.

**Ordering and Marking Information**
**Device Marking: 702**

**Package (Available)**  
**SOT-363**  
**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	4	120000

**Reliability Test Program**

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

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