



MMBT7002KDW Plastic-Encapsulate MOSFETS

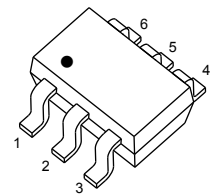
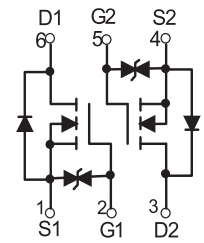
APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

FEATURE

- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

MARKING : 72K



SOT-363

MOSFET MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source voltage	60	V
V_{GS}	Gate-Source voltage	± 20	V
I_D	Drain Current	300	mA
P_D	Power Dissipation	0.15	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	$^\circ\text{C/W}$



$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Characteristics						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage*	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1mA$	1	1.3	2.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
Gate -Source leakage current	I_{GSS1}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 10	μA
Drain-Source On-Resistance*	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 200mA$		1.1	5.3	Ω
		$V_{GS} = 10V, I_D = 500mA$		0.9	5	Ω
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 300mA$			1.5	V
Recovered charge	Q_r	$V_{GS} = 0V, I_S = 300mA, V_R = 25V, di_S/dt = -100A/\mu s$		30		nC
Dynamic Characteristics**						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$			40	pF
Output Capacitance	C_{oss}				30	pF
Reverse Transfer Capacitance	C_{rss}				10	pF
Switching Characteristics**						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 50V, R_G = 50\Omega, R_{GS} = 50\Omega, R_L = 250\Omega$			10	ns
Turn-Off Delay Time	$t_{d(off)}$				15	ns
Reverse recovery Time	t_{rr}	$V_{GS} = 0V, I_S = 300mA, V_R = 25V, di_S/dt = -100A/\mu s$		30		ns
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV_{GSO}	$I_{GS} = \pm 1mA$ (Open Drain)	± 21.5		± 30	V

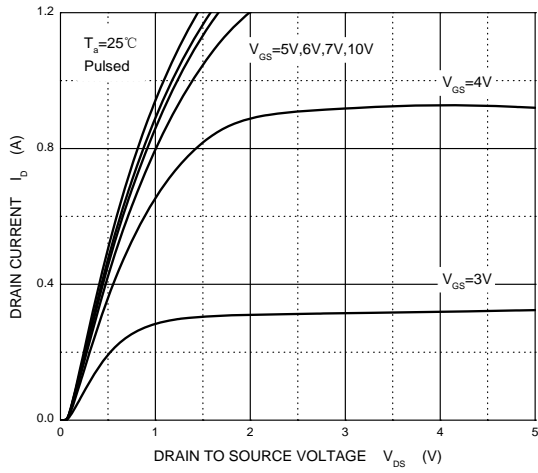
Notes :

*Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

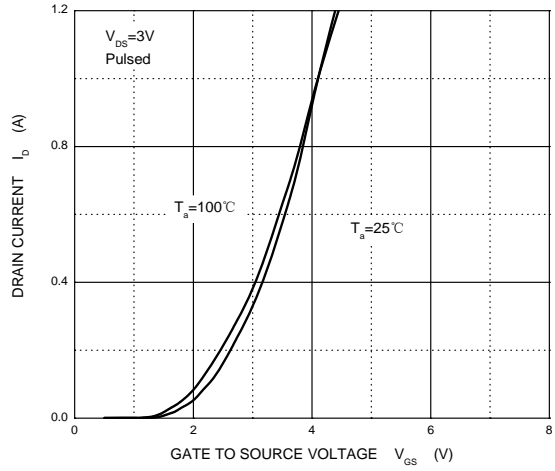
**These parameters have no way to verify.



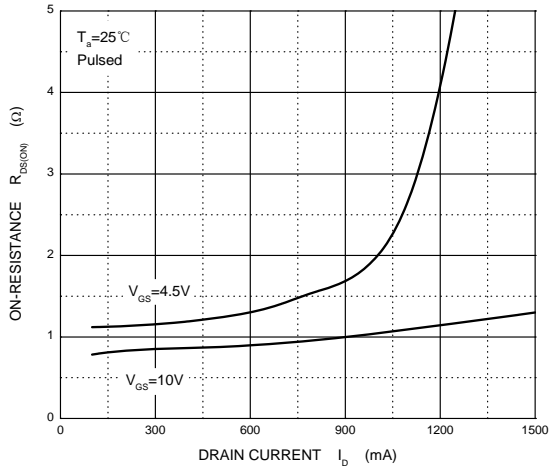
Output Characteristics



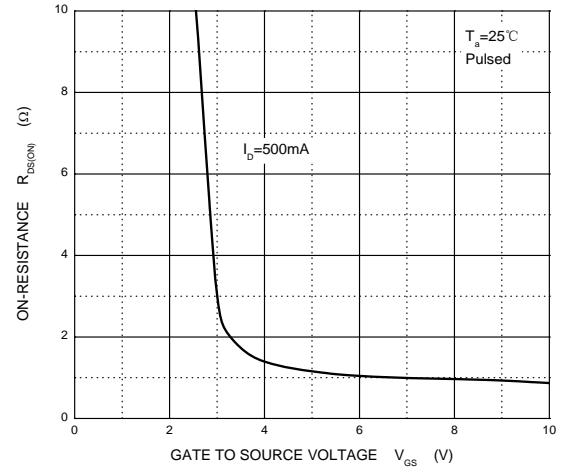
Transfer Characteristics



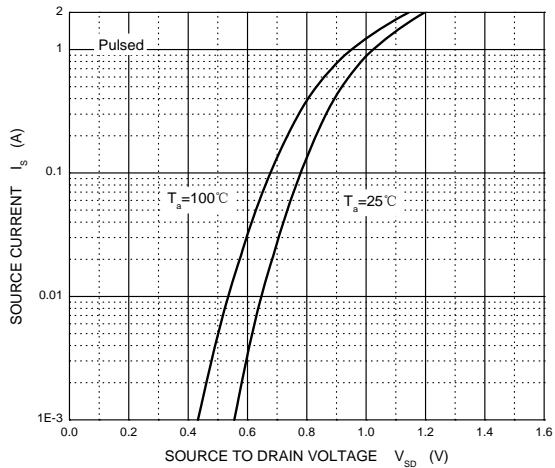
$R_{DS(ON)}$ — I_D



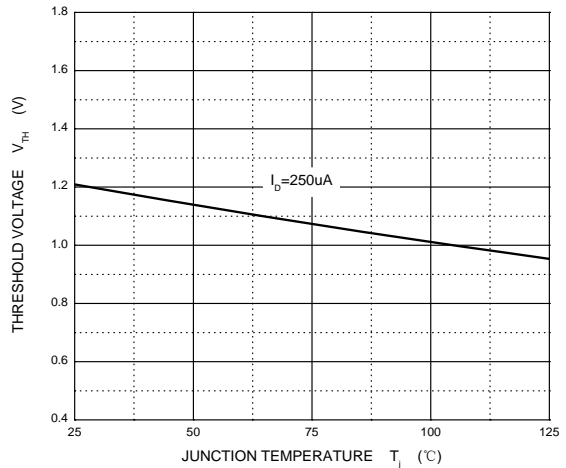
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

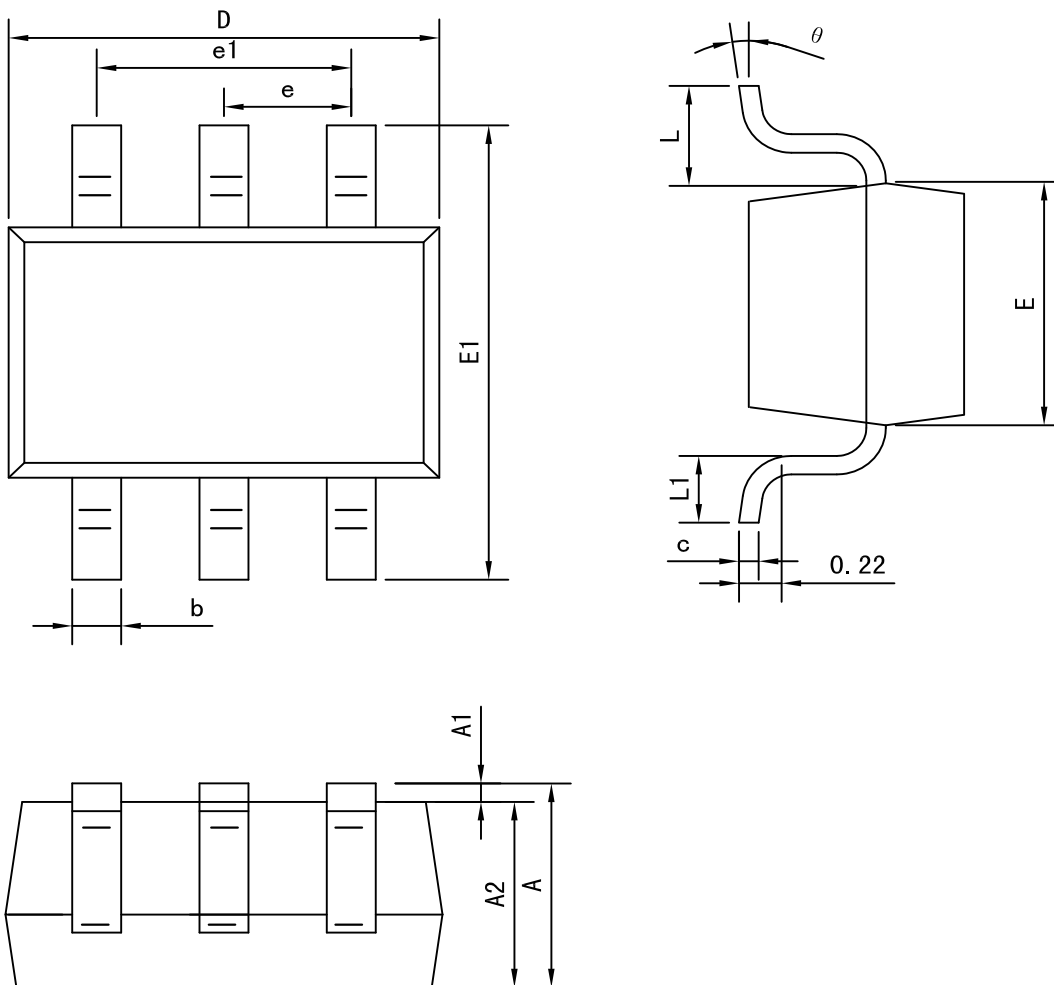


Threshold Voltage





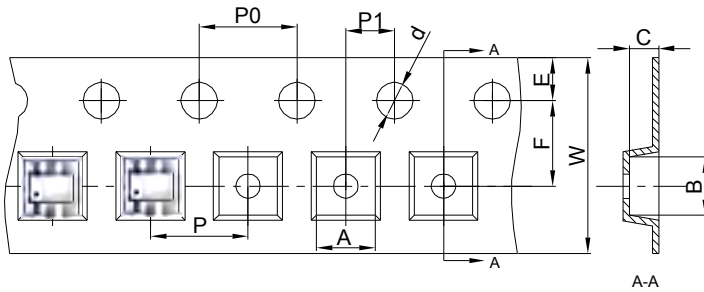
SOT-363 Package outline dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°



SOT-363 Embossed Carrier Tape



Packaging Description:

SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

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

