

**60V ESD Protected
N-Channel Enhancement Mode MOSFET**

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@500mA=2\Omega$
 $R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@200mA=3\Omega$

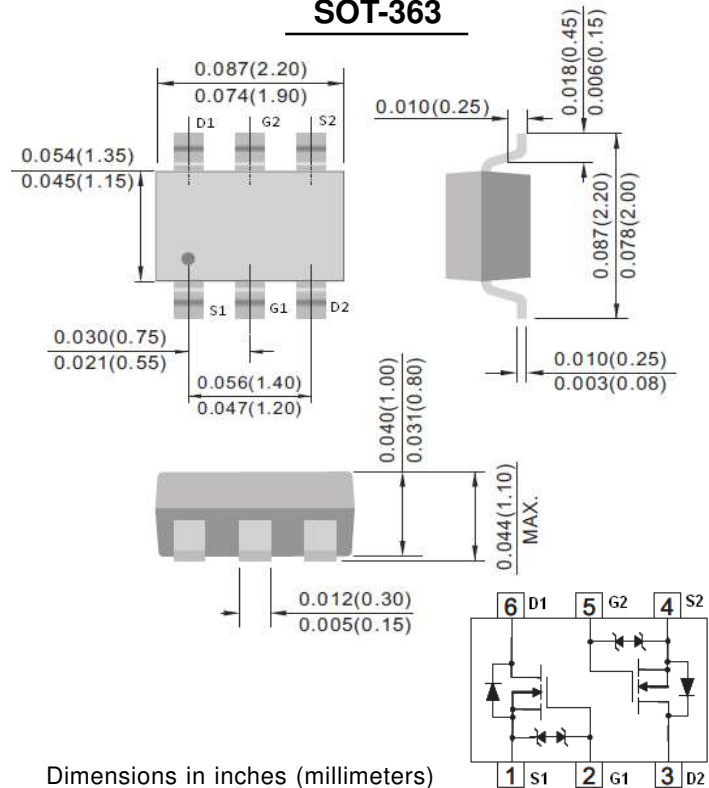
FEATURES

- Advanced Trench Process Technology
- Ultra Low On Resistance : 2Ω
- Fast Switching Speed : 20ns
- Low Input and Output Leakage Current
- 2KV ESD Protection
- Specially Designed for High Speed Circuit, Battery Operated System, Drivers : Lamps, Transistors, Relays, Memories, Display, etc..
- Compliant to EU RoHS Directive 2002/95/EC

MECHANIAL DATA

- Case : SOT-363 Molded Plastic
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Marking : 702

SOT-363



Maximum Rating and Thermal Characteristics ($T_c=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_c=25^\circ\text{C}$	I_D	115	mA
Pulsed Drain Current ¹⁾		I_{DM}	850	mA
Maximum Power Dissipation	$T_c=25^\circ\text{C}$	P_D	0.2	W
Derating Factor	$T_c=100^\circ\text{C}$		0.08	
Junction to Ambient Thermal Resistance (PCB Mounted) ²⁾		$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note : 1. Maximum DC Current Limit by the Package

2. Surface Mounted on FR4 Board, $t < 5\text{sec}$

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Electrical Characteristics ($T_c=25^{\circ}\text{C}$, unless otherwise noted)

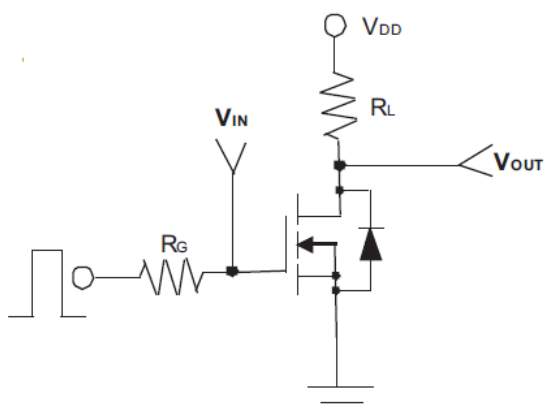
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	-	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$	-	1.3	2	Ω
		$V_{GS}=4.5V, I_D=200mA$	-	1.8	3	Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate Body Leakage	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 10	nA

Dynamic

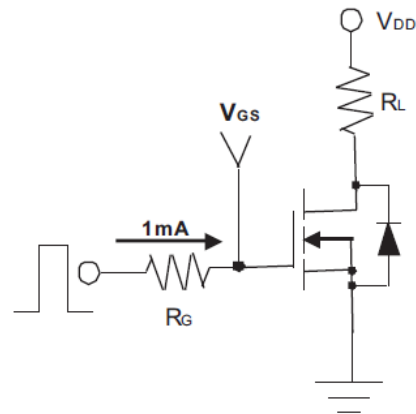
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=200mA$ $V_{GS}=4.5V$	-	0.6	0.8	nC
Gate-Source Charge	Q_{gs}		-	0.16	0.2	
Gate-Drain Charge	Q_{gd}		-	0.24	0.32	
Turn-On Time	t_{on}	$V_{DD}=30V, I_D=200mA$ $V_{GS}=10V, R_G=10\Omega$	-	12.8	20	ns
Turn-Off Time	t_{off}		-	28	38	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V$ $f=1.0MHz$	-	36	45	pF
Output Capacitance	C_{oss}		-	4.8	9.6	
Reverse Transfer Capacitance	C_{rss}		-	2.4	4.2	

Source-Drain Diode

Max. Diode Forward Current	I_S	-	-	-	300	mA
Max.Pulsed Source Current	I_{SM}	-	-	-	2000	mA
Diode Forward Voltage	V_{SD}	$I_S=200A, V_{GS}=0V$	-	0.84	1.3	V



Switching Test Circuit



Gate Charge Test Circuit

Typical Characteristics Curve ($T_c=25^\circ\text{C}$, unless otherwise noted)

FIG.1 - Output Characteristics

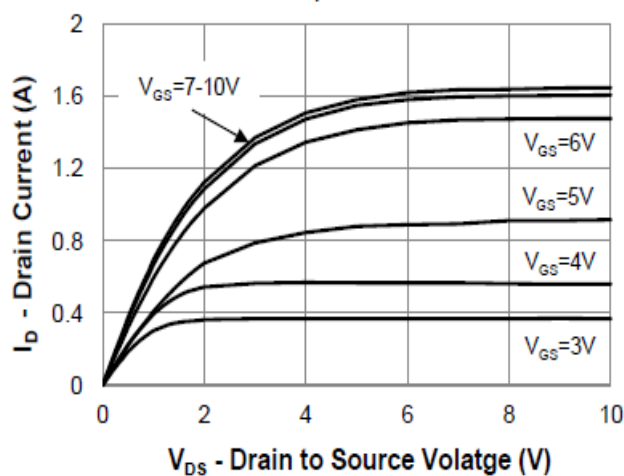


FIG. 2 - Transfer Characteristics

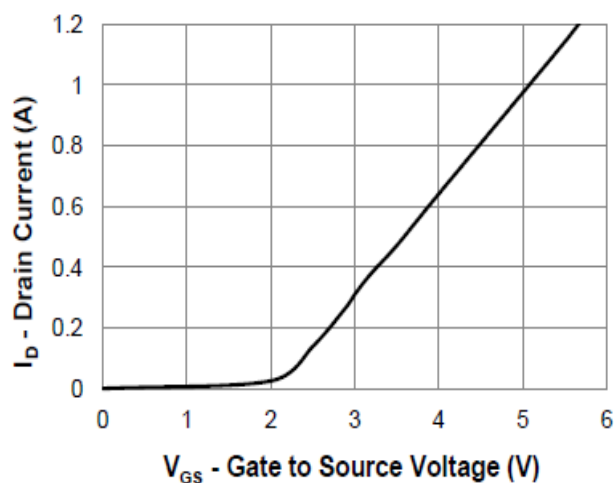


FIG. 3 - On-Resistance vs Drain Current

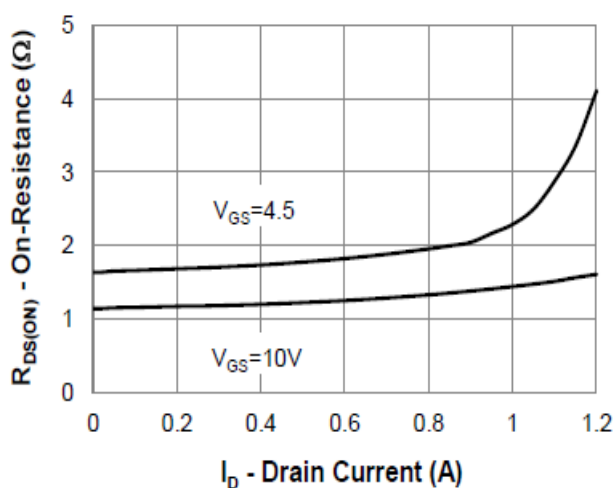


FIG. 4 - On-Resistance vs Gate to Source Voltage

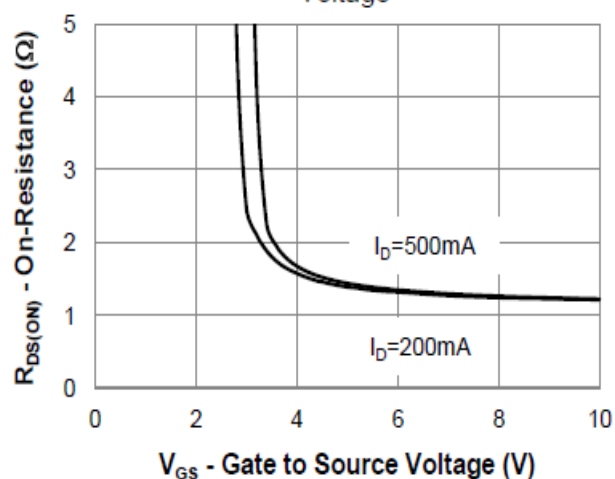


FIG. 5 - On-Resistance vs Junction Temperature

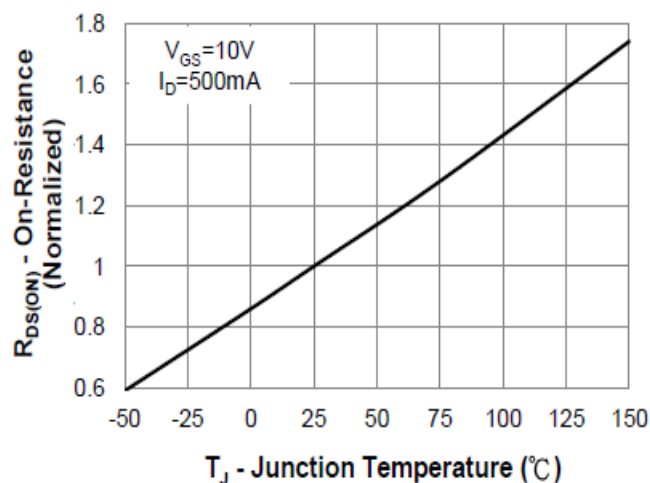
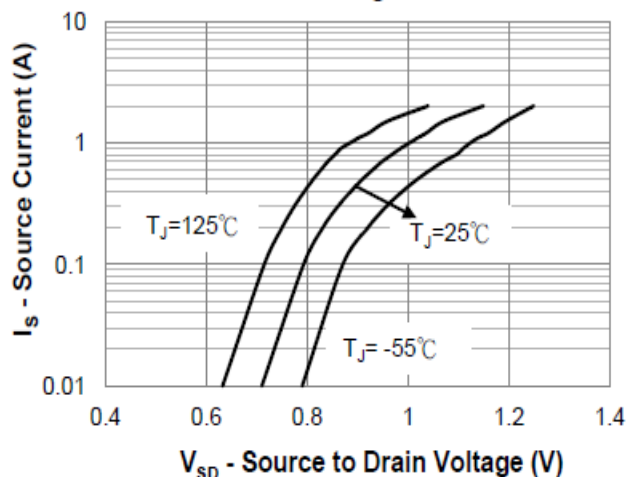


FIG. 6 - Source-Drain Diode Forward Voltage



Typical Characteristics Curve ($T_c=25^\circ\text{C}$, unless otherwise noted)

FIG. 7 - Capacitance Curve

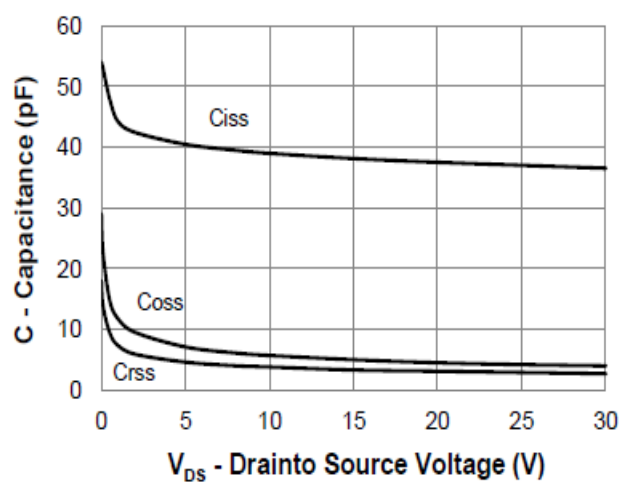


FIG. 8 - Gate Charge

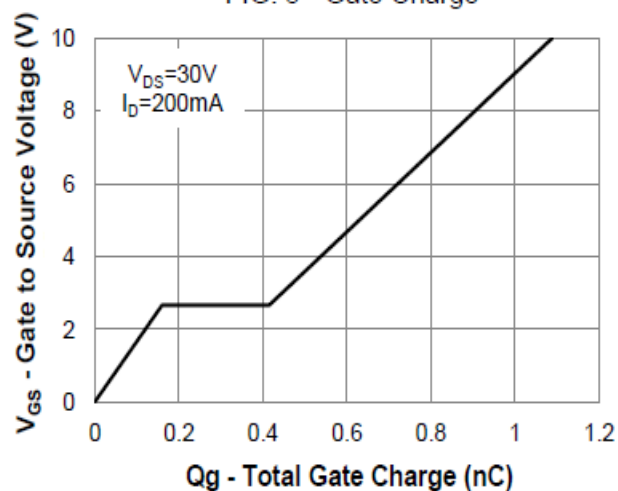


FIG. 9 Threshold Voltage vs Junction Temperature

