

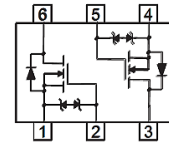
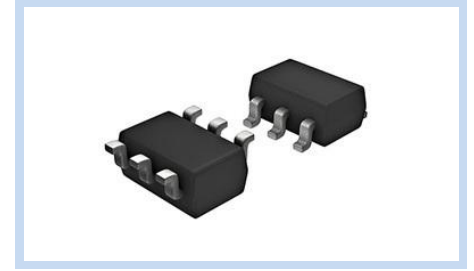
2N Channel MOSFET AEC-Q101 60V 0.3A SOT-363 ESD

MFT62NA30S363EA

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FEATURE

- $R_{DS(ON)} < 3\Omega$ at $V_{GS}=10V$
- $R_{DS(ON)} < 4\Omega$ at $V_{GS}=5V$
- Low On Resistance
- Low Gate Threshold Voltage
- Applications: Motor Control, Power Management
- ESD Protected
- AEC-Q101 Qualified



MECHANICAL DATA

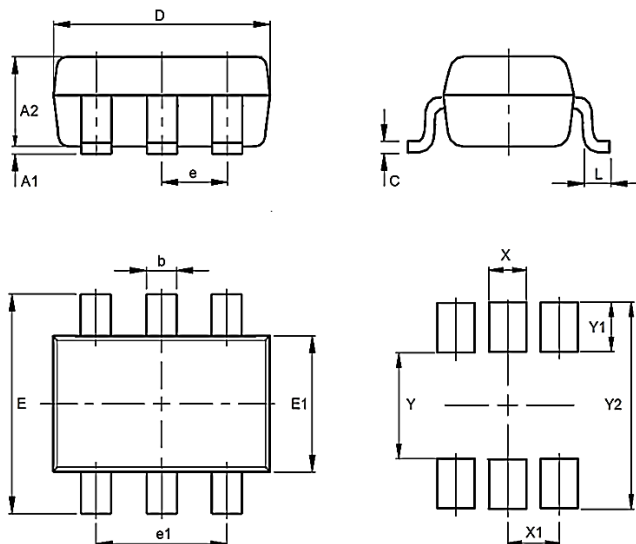
- Case: SOT-363, Molded Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous		I_D	300	mA
Drain Current – Pulsed		I_{DM}	1200	mA
Power Dissipation	Note 2	P_D	295	mW
	Note 3		350	
Thermal Resistance Junction to Ambient	Note 2	$R_{\theta JA}$	423	$^{\circ}C/W$
	Note 3		357	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^{\circ}C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.90	1.00
b	0.10	0.30
c	0.10	0.25
D	1.80	2.20
e	0.65	
e1	1.30	
E	2.00	2.20
E1	1.15	1.35
L	0.15	0.40
Y	1.30	
Y1	0.60	
Y2	2.50	
X	0.42	
X1	0.65	



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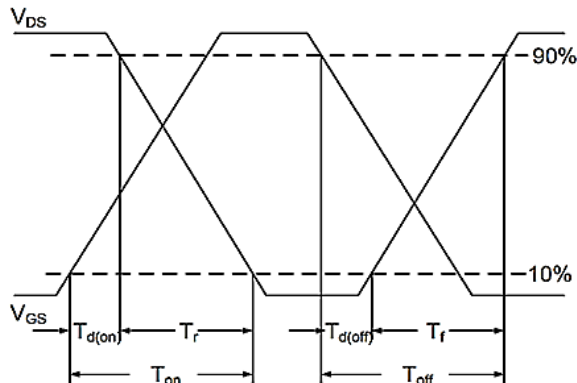
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=10\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	I_{DSS}	--	--	1	μA
Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	I_{GSS}	--	--	± 10	μA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=500mA$	$R_{DS(ON)}$	--	--	3	Ω
	$V_{GS}=5V$, $I_D=50mA$		--	--	4	
Gate Threshold Voltage	$V_{DS}=10V$, $I_D=250\mu A$	$V_{GS(th)}$	1.10	--	1.75	V
Forward Transconductance	$V_{DS}=10V$, $I_D=200mA$	g_{FS}	80	--	--	mS
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $F=1MHz$	R_g	--	200	--	Ω
Total Gate Charge	$V_{DS}=10V$, $V_{GS}=4.5V$, $I_D=500mA$	Q_g	--	0.44	--	nC
Gate-Source Charge		Q_{gs}	--	0.20	--	
Gate-Drain Charge		Q_{gd}	--	0.10	--	
Turn-On Delay Time	$V_{DD}=30V$, $V_{GS}=10V$, $I_D=500mA$, $R_G=25\Omega$	$T_{d(on)}$	--	2.7	--	ns
Rise Time		T_r	--	2.5	--	
Turn-Off Delay Time		$T_{d(off)}$	--	13	--	
Fall Time		T_f	--	8	--	
Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $F=1MHz$	C_{iss}	--	21	50	pF
Output Capacitance		C_{oss}	--	12	25	
Reverse Transfer Capacitance		C_{rss}	--	0.35	10	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	--	I_S	--	--	300	mA
Diode Forward Voltage	$V_{GS}=0V$, $I_S=500mA$, $T_J=25^\circ C$	V_{SD}	--	0.85	--	V
Reverse Recovery Time	$I_S=500mA$, $di/dt=100A/\mu s$	t_{rr}	--	30	--	ns
Reverse Recovery Charge		Q_{rr}	--	29	--	nC

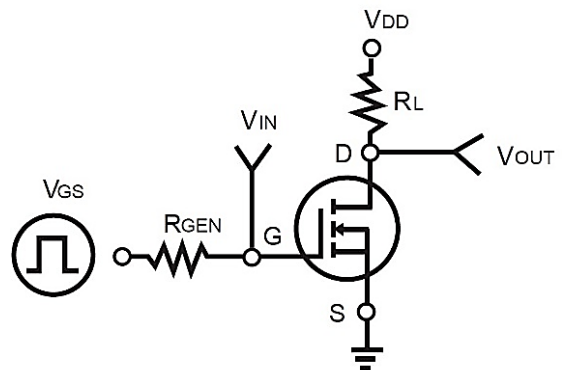
Note:

- $T_A = 25^\circ C$ unless otherwise specified
- Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout
- Device mounted on FR-4 substrate PC board, 2oz copper, with 1 inch² copper plate

Switching Time Waveform



Switching Test Circuit



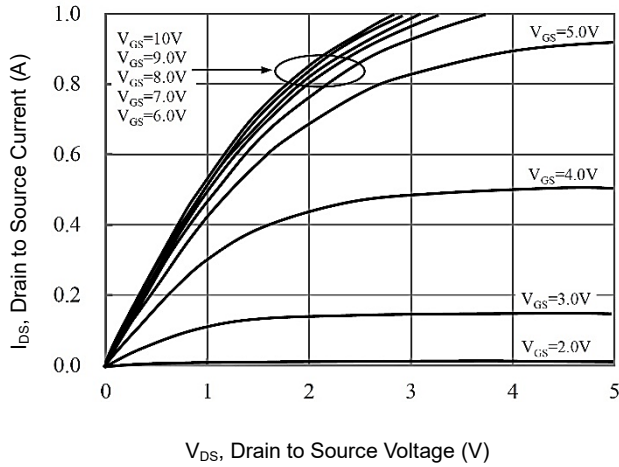
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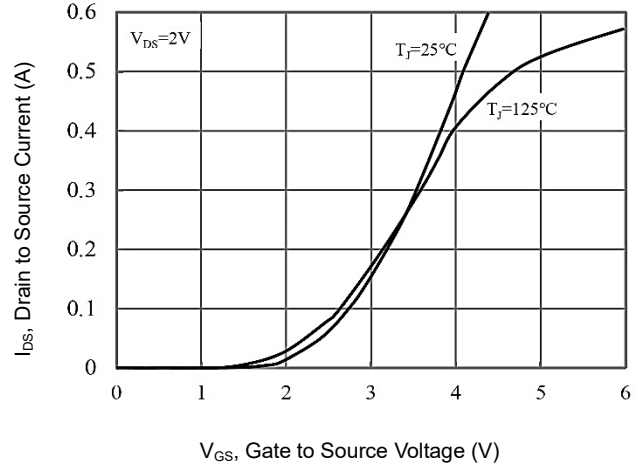
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CHARACTERISTIC CURVES

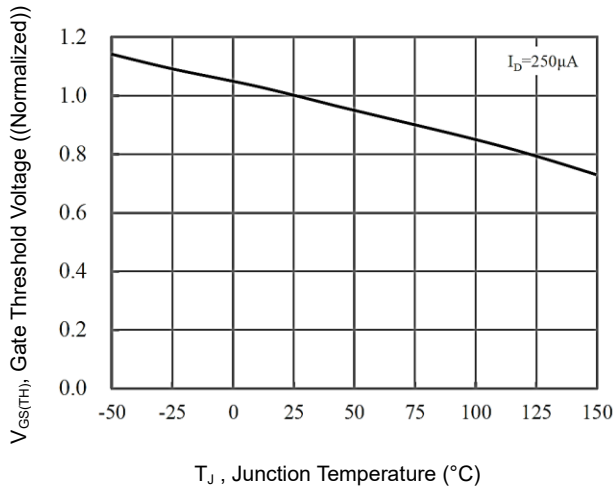
On-Region Characteristic



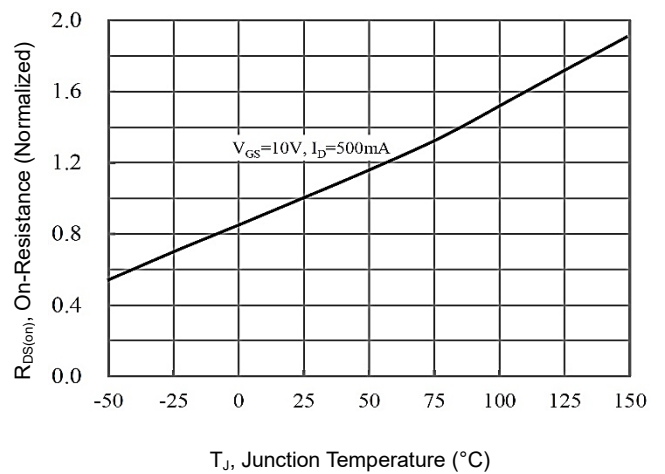
Transfer Characteristics



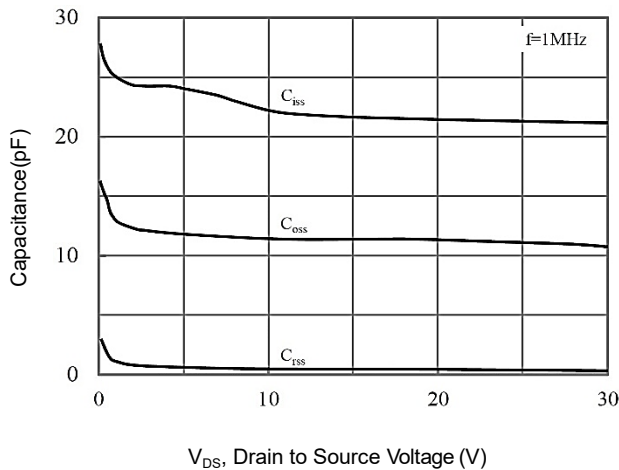
Gate Threshold Voltage vs Junction Temperature



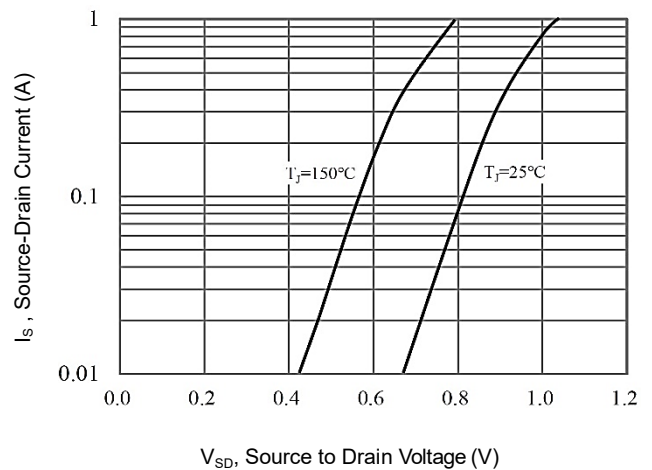
On-Resistance vs. Junction Temperature



Capacitance vs. Drain-Source Voltage

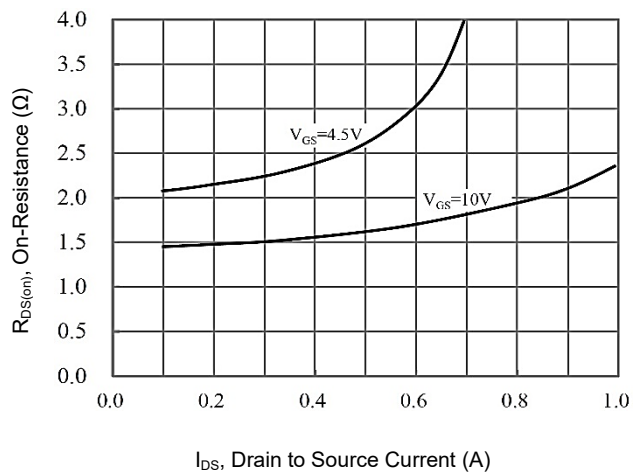


Source-Drain Diode Forward Voltage

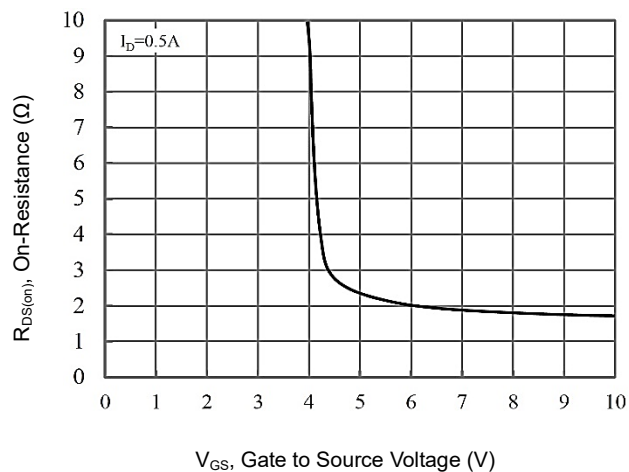


CHARACTERISTIC CURVES

On-Resistance vs. Drain Current



On-Resistance Variation with V_{GS}



Gate-Charge Characteristics

