

# N Channel MOSFET

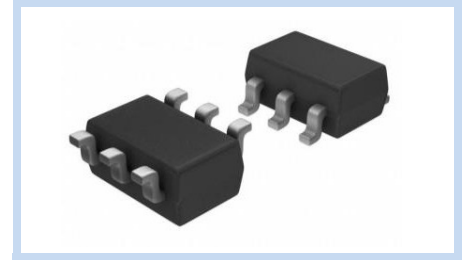
## 60V 115mA 200mW ESD

MFT62NA115S363E

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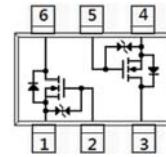
### FEATURE

- $R_{DS(ON)} < 4\Omega$ ,  $V_{GS} = 4.5V$ ,  $I_D = 200mA$
- $R_{DS(ON)} < 3\Omega$ ,  $V_{GS} = 10V$ ,  $I_D = 500mA$
- Advanced Trench Process Technology
- ESD Protected 2KV HBM



### MECHANICAL DATA

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

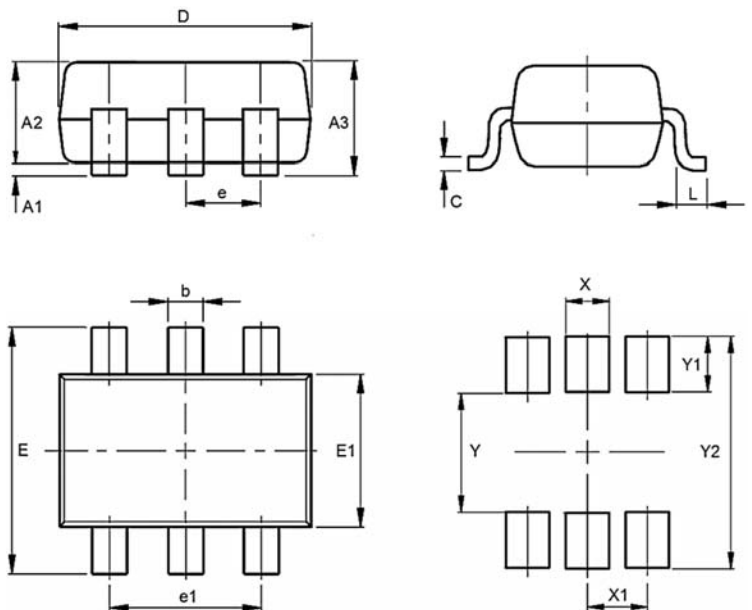


### MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	$V_{DS}$	60	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V	
Drain Current – Continuous	$I_D$	115	mA	
Drain Current – Pulsed	$I_{DM}$	800	mA	
Power Dissipation	$P_D$	$T_A = 25^\circ C$	200	mW
		Derate above $25^\circ C$	120	mW/ $^\circ C$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625	$^\circ C/W$	
Operating Junction and Storage Temperature	$T_J, T_{STG}$	-55 to +150	$^\circ C$	

### DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.80	1.00
A3	-	1.10
b	0.15	0.30
C	0.08	0.25
D	1.90	2.20
e	0.55	0.75
e1	1.20	1.40
E	2.00	2.20
E1	1.15	1.35
L	0.15	0.45
Y		1.18
Y1		0.66
Y2		2.50
X		0.45
X1		0.65



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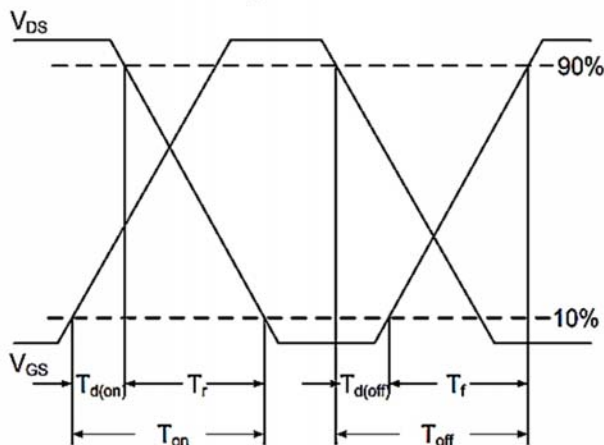
### ELECTRICAL CHARACTERISTICS

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	$\mu A$
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 10$	$\mu A$
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=500mA$	$R_{DS(ON)}$	-	-	3	$\Omega$
	$V_{GS}=4.5V, I_D=200mA$		-	-	4	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	$V_{GS(th)}$	1	-	2.5	V
Forward Transconductance	$V_{DS}=15V, I_D=250mA$	$g_{fs}$	100	-	-	mS
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=15V, V_{GS}=4.5V, I_D=200mA$	$Q_g$	-	0.8	-	nC
Gate-Source Charge		$Q_{gs}$	-	0.35	-	
Gate-Drain Charge		$Q_{gd}$	-	0.2	-	
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=10\Omega$ $I_D=200mA,$	$T_{d(on)}$	-	20	-	ns
Rise Time		$T_r$	-	19	-	
Turn-Off Delay Time		$T_{d(off)}$	-	40	-	
Fall Time		$T_f$	-	23	-	
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	$C_{iss}$	-	35	-	pF
Output Capacitance		$C_{oss}$	-	10	-	
Reverse Transfer Capacitance		$C_{rss}$	-	5	-	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	-	$I_S$	-	-	250	mA
Diode Forward Voltage	$V_{GS}=0V, I_S=200mA$	$V_{SD}$	-	0.82	1.3	V

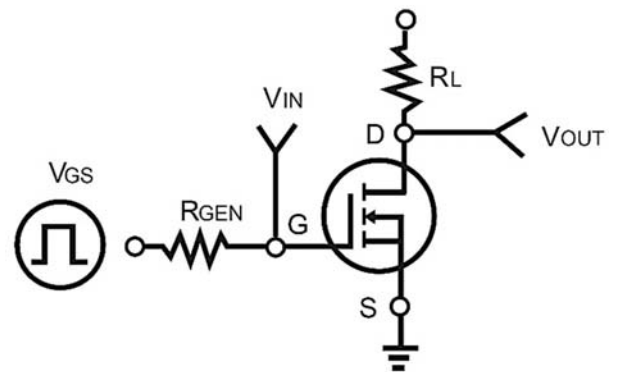
Note:

1. Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics
3.  $R_{\theta JA}$  is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. mounted on a 1-inch square pad of copper
4. Guaranteed by design, not test in mass production
5. The maximum current rating is package limited

Switching Time Waveform

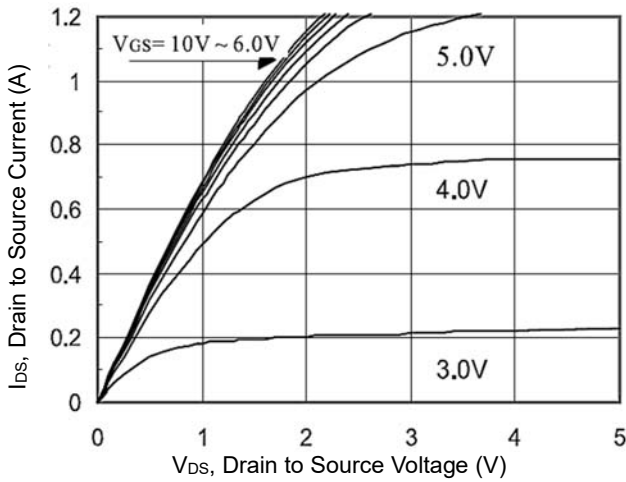


Switching Test Circuit

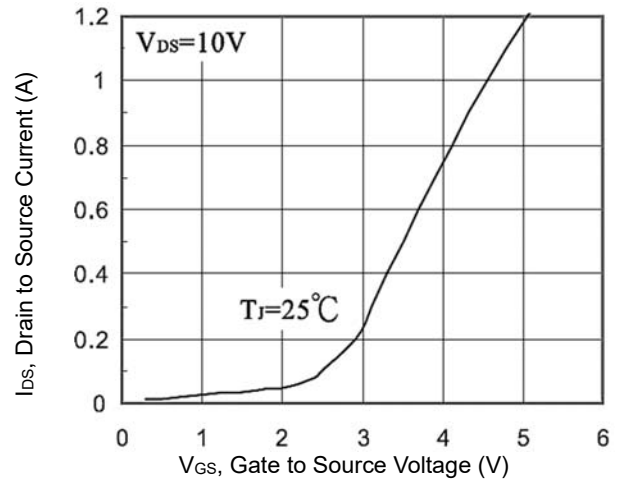


**CHARACTERISTIC CURVES**

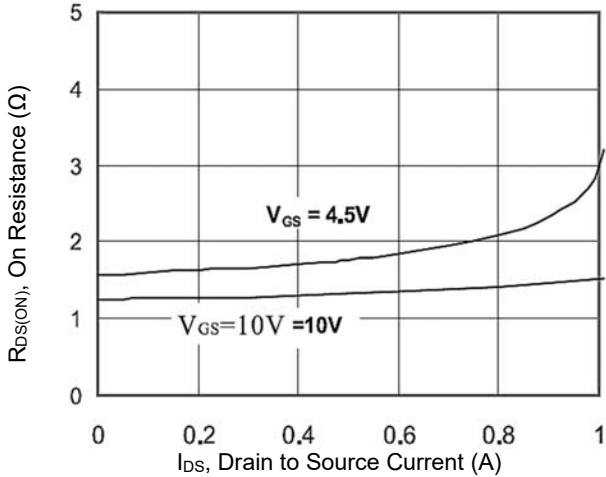
**On-Region Characteristics**



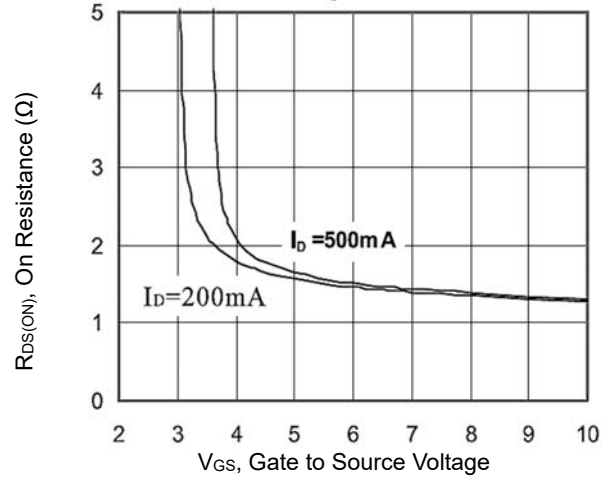
**Transfer Characteristic**



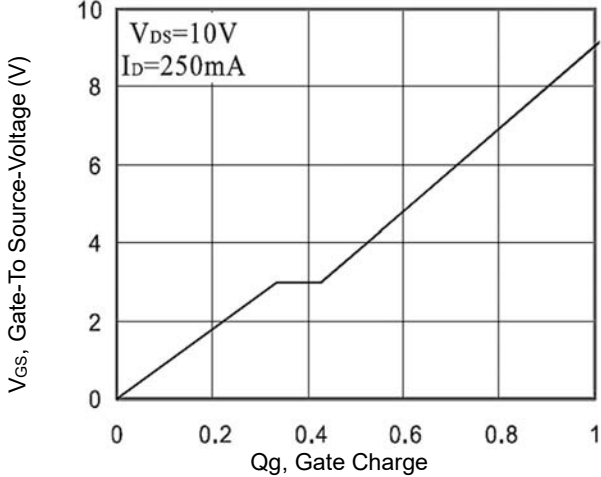
**On Resistance vs. Drain Current**



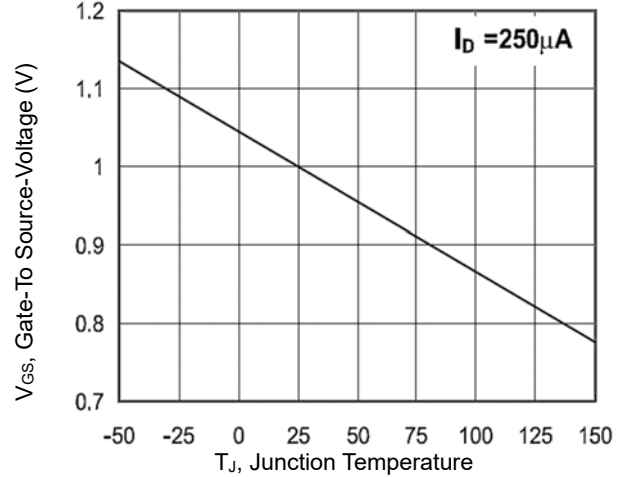
**Gate Charge Waveform**



**Gate Charge**



**Threshold Voltage vs. Temperature**



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**CHARACTERISTIC CURVES**

