

Single P-channel MOSFET

ELM340703A-N

■ General description

ELM340703A-N uses advanced trench technology to provide excellent $R_{ds(on)}$, low gate charge and low gate resistance. Internal ESD protection is included.

■ Features

- $V_{ds} = -30V$
- $I_d = -15A$
- $R_{ds(on)} < 7m\Omega$ ($V_{gs} = -10V$)
- $R_{ds(on)} < 12m\Omega$ ($V_{gs} = -4.5V$)
- ESD protected

■ Maximum absolute ratings

$T_a = 25^\circ C$. Unless otherwise noted.

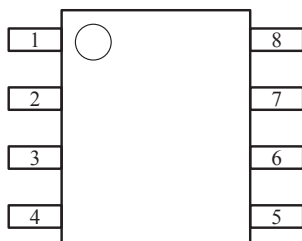
Parameter	Symbol	Limit	Unit	Note
Drain-source voltage	V_{ds}	-30	V	
Gate-source voltage	V_{gs}	± 20	V	
Continuous drain current	I_d	$T_a = 25^\circ C$	-15	A
		$T_a = 70^\circ C$	-11	
Pulsed drain current	I_{dm}	-69	A	3
Avalanche current	I_{as}	-69	A	
Avalanche energy	E_{as}	238	mJ	
Power dissipation	P_d	$T_c = 25^\circ C$	2.5	W
		$T_c = 70^\circ C$	1.6	
Junction and storage temperature range	T_j, T_{stg}	-55 to 150	$^\circ C$	

■ Thermal characteristics

Parameter	Symbol	Typ.	Max.	Unit	Note
Maximum junction-to-ambient	$R_{\theta ja}$		50	$^\circ C/W$	

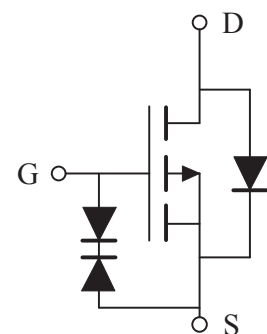
■ Pin configuration

SOP-8(TOP VIEW)



Pin No.	Pin name
1	SOURCE
2	SOURCE
3	SOURCE
4	GATE
5	DRAIN
6	DRAIN
7	DRAIN
8	DRAIN

■ Circuit



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■Electrical characteristics

Ta=25°C. Unless otherwise noted.

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
STATIC PARAMETERS							
Drain-source breakdown voltage	BVdss	Id=-250μA, Vgs=0V	-30			V	
Zero gate voltage drain current	Idss	Vds=-24V, Vgs=0V			-1	μA	
		Vds=-20V, Vgs=0V, Ta=125°C			-10		
Gate-body leakage current	Igss	Vds=0V, Vgs=±16V			±30	μA	
Gate threshold voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.0	-1.7	-3.0	V	
Static drain-source on-resistance	Rds(on)	Vgs=-10V, Id=-15A		4.8	7.0	mΩ	1
		Vgs=-4.5V, Id=-10A		6.8	12.0		
Forward transconductance	Gfs	Vds=-5V, Id=-15A		25		S	1
Diode forward voltage	Vsd	Is=-15A, Vgs=0V			-1.2	V	1
Max. body-diode continuous current	Is				-15	A	
DYNAMIC PARAMETERS							
Input capacitance	Ciss	Vgs=0V, Vds=-15V, f=1MHz		5200		pF	
Output capacitance	Coss			885		pF	
Reverse transfer capacitance	Crss			789		pF	
SWITCHING PARAMETERS							
Total gate charge	Qg	Vgs=-10V, Vds=-15V Id=-15A		119		nC	2
Gate-source charge	Qgs			14		nC	2
Gate-drain charge	Qgd			31		nC	2
Turn-on delay time	td(on)	Vgs=-10V, Vds=-15V Id=-15A, Rgen=6Ω		26		ns	2
Turn-on rise time	tr			29		ns	2
Turn-off delay time	td(off)			225		ns	2
Turn-off fall time	tf			124		ns	2
Reverse recovery time	trr	If=-15A, dIf/dt=100A/μs		35		ns	
Reverse recovery charge	Qrr			20		nC	

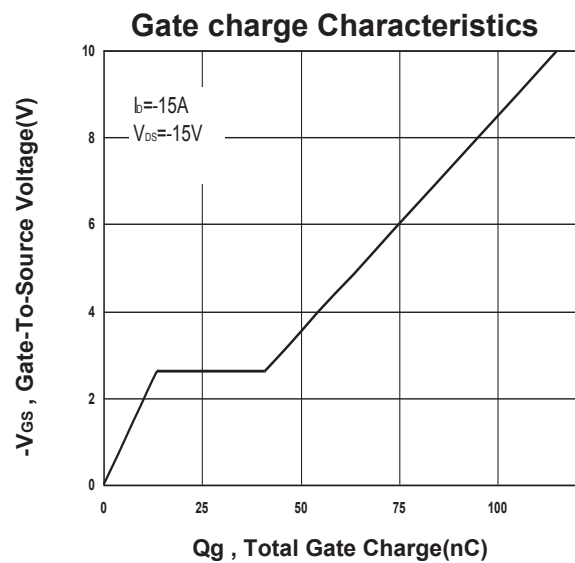
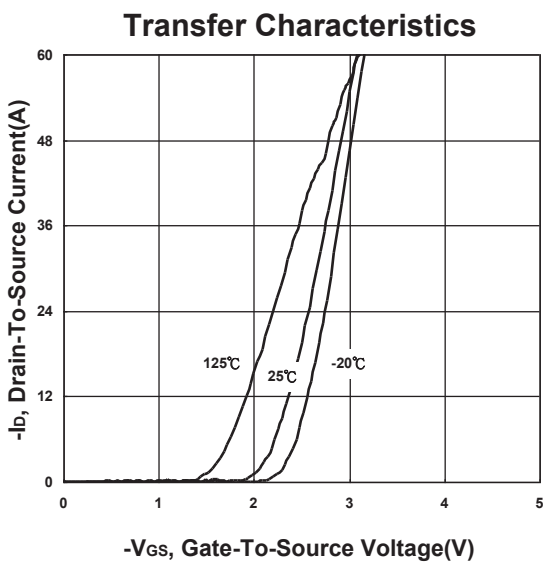
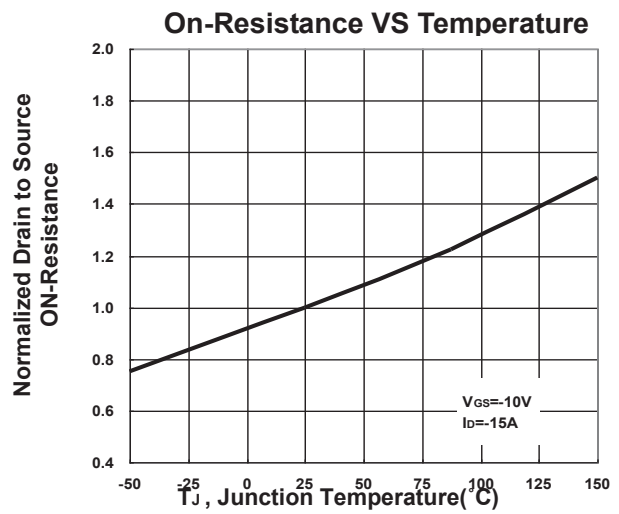
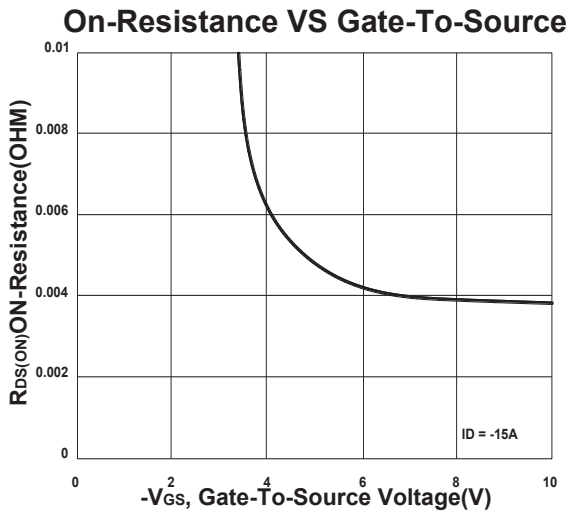
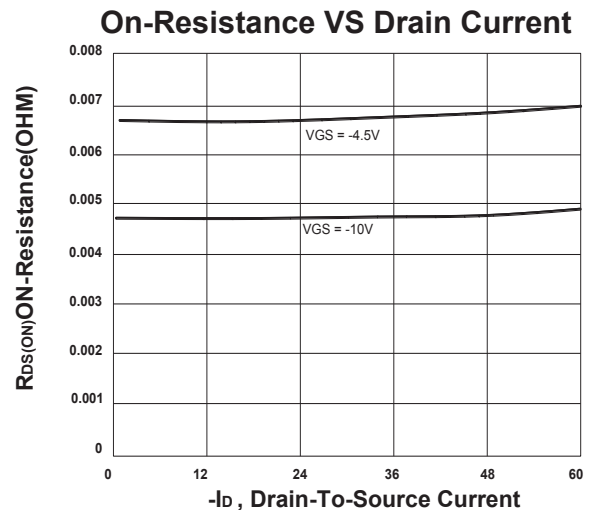
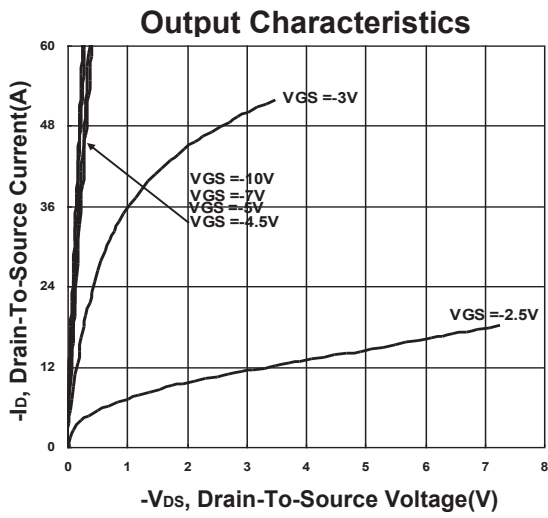
NOTE :

1. Pulsed width≤300μsec and Duty cycle≤2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature.

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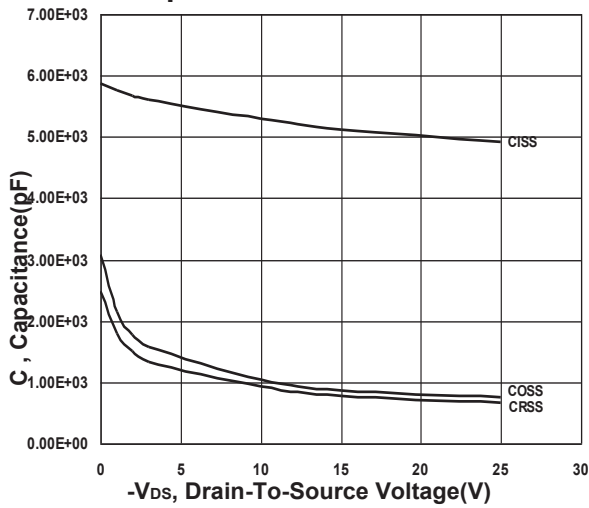
Typical electrical and thermal characteristics



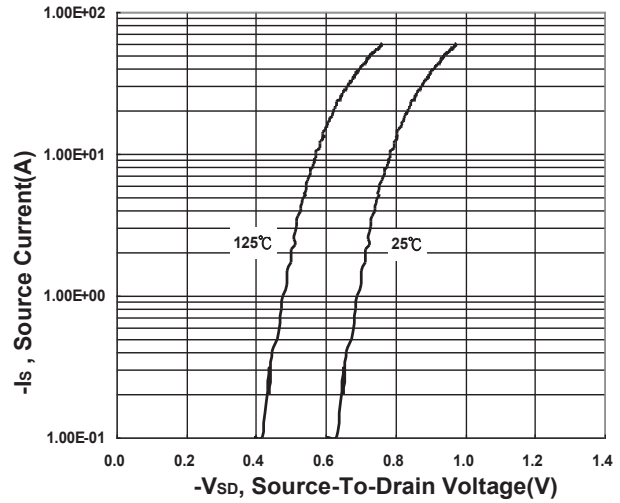
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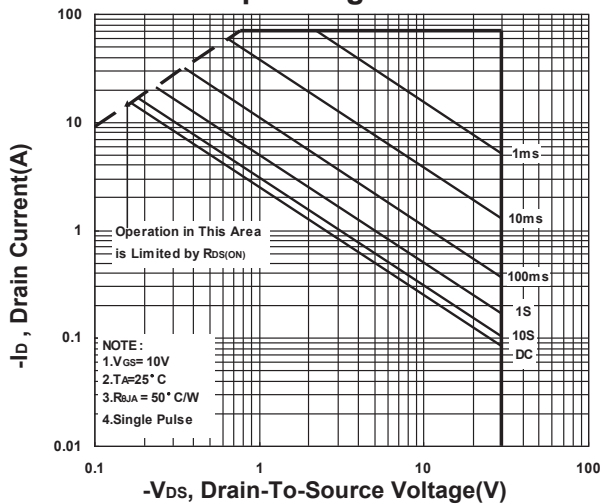
Capacitance Characteristic



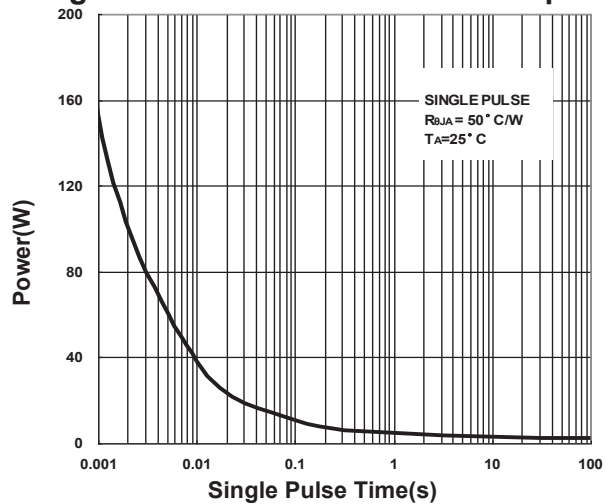
Body Diode Forward Voltage VS Source current



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

