Ordering number : ENA2314A

ECH8695R

N-Channel Power MOSFET
24V, 11A, 9.1mΩ, Dual ECH8 Common Drain

ON Semiconductor®

http://onsemi.com

Features

- Low On-resistance
- 2.5V drive
- Common-drain type
- Protection diode in
- Built-in gate protection resistor
- Best suited for LiB charging and discharging switch
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	V_{DSS}		24	V
Gate to Source Voltage	V_{GSS}		±12.5	V
Drain Current (DC)	I_D		11	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	60	A
Power Dissipation	P_D	When mounted on ceramic substrate(900mm^2×0.8mm) 1unit	1.4	W
Total Dissipation	P_T	When mounted on ceramic substrate(900mm^2×0.8mm)	1.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		- 55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient When mounted on ceramic substrate (900mm^2×0.8mm) 1unit	$R_{\theta JA}$	89.3	°C /W

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	24			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±1	μA
Gate Threshold Voltage	V_{GS}(th)	V_{DS}=10V, I_D=1mA	0.5		1.3	V
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=5A		6.5		S
Static Drain to Source On-State Resistance	R_{DS}(on)1	I_D=5A, V_{GS}=4.5V	5.6	7.0	9.1	mΩ
	R_{DS}(on)2	I_D=5A, V_{GS}=4.0V	5.8	7.3	9.5	mΩ
	R_{DS}(on)3	I_D=5A, V_{GS}=3.1V	6.5	8.2	11.5	mΩ
	R_{DS}(on)4	I_D=2.5A, V_{GS}=2.5V	7.6	9.5	13.3	mΩ

Continued on next page.

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

Continued from preceding page.

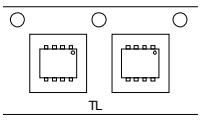
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		300		ns
Rise Time	t_r			320		ns
Turn-OFF Delay Time	$t_{d(off)}$			19700		ns
Fall Time	t_f			22300		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=11A		10		nC
Gate to Source Charge	Qgs			1.6		nC
Gate to Drain “Miller” Charge	Qgd			1.5		nC
Forward Diode Voltage	V_{SD}	I_S=11A, V_{GS}=0V		0.77	1.2	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

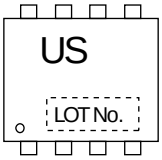
Ordering & Package Information

Device	Package	Shipping	note
ECH8695R-TL-W	ECH8	3,000 pcs. / reel	Pb-Free and Halogen Free

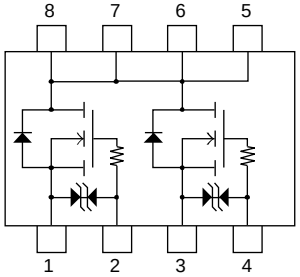
Packing Type:TL



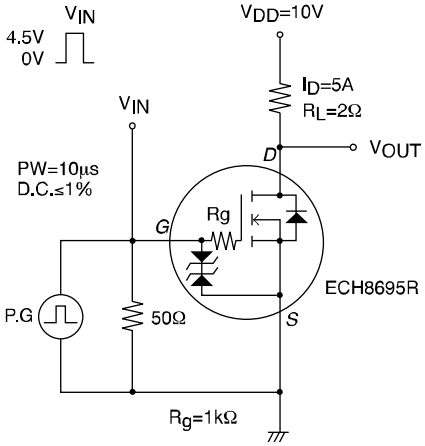
Marking

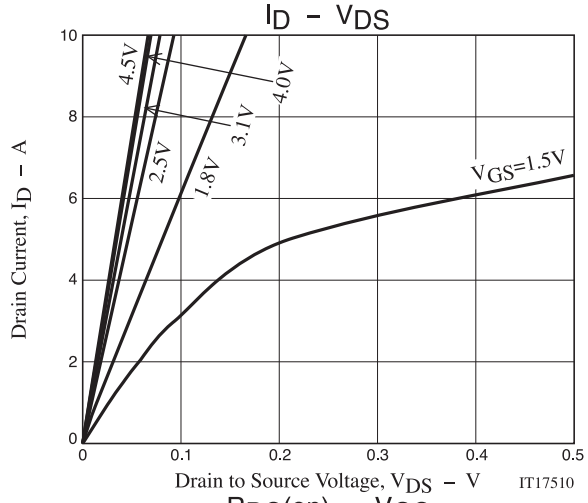


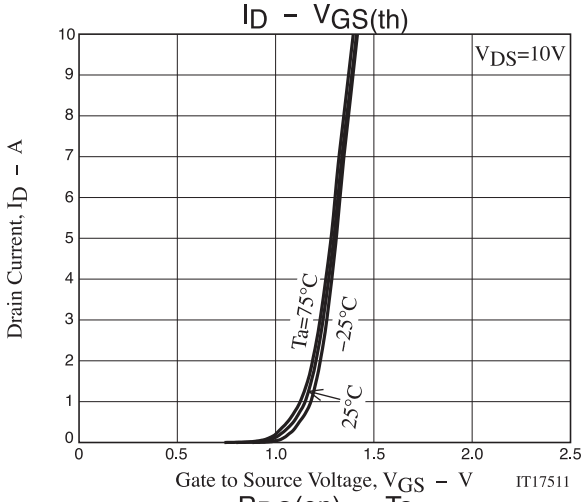
Electrical Connection

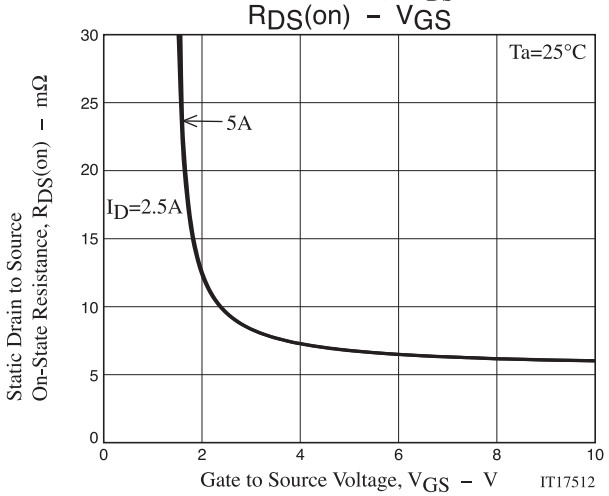


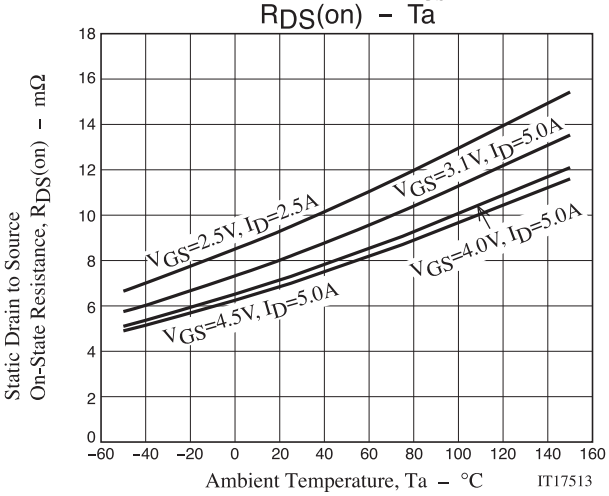
Switching Time Test Circuit

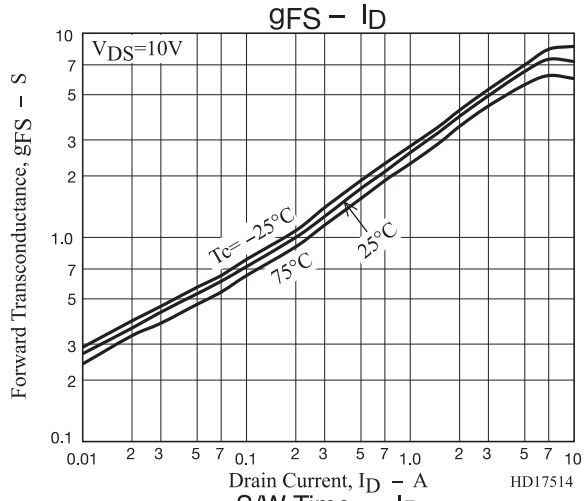


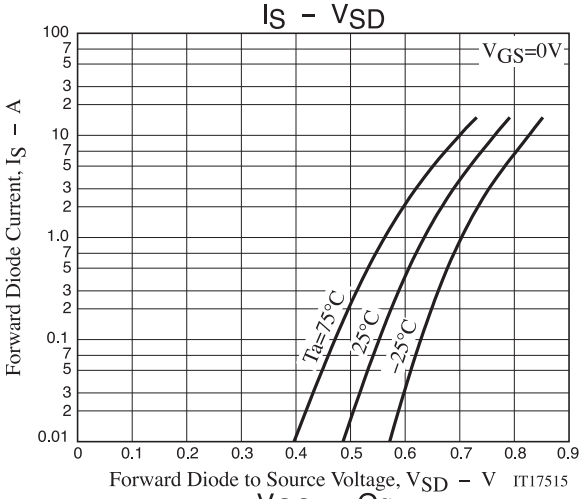

ID – VDS
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT17510
4.5V
4.0V
3.1V
2.5V
1.8V
VGS=1.5V

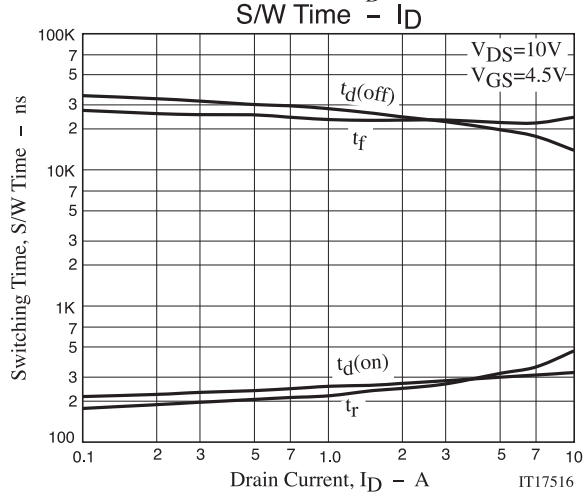

ID – VGS(th)
Drain Current, ID – A
Gate to Source Voltage, VGS – V
IT17511
VDS=10V
Ta=75°C
–25°C
25°C

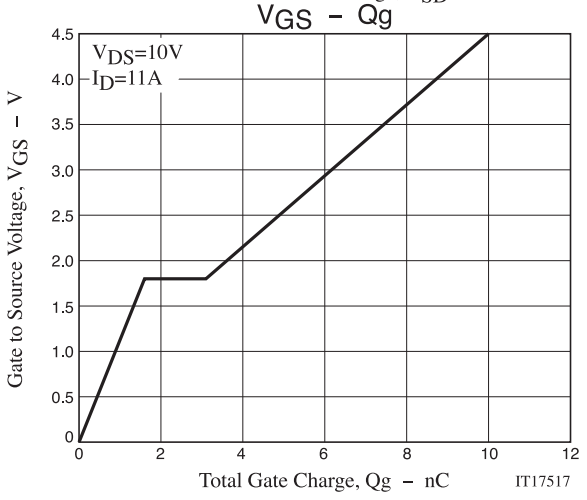

RDS(on) – VGS
Static Drain to Source
On-State Resistance, RDS(on) – mΩ
Gate to Source Voltage, VGS – V
IT17512
Ta=25°C
5A
ID=2.5A

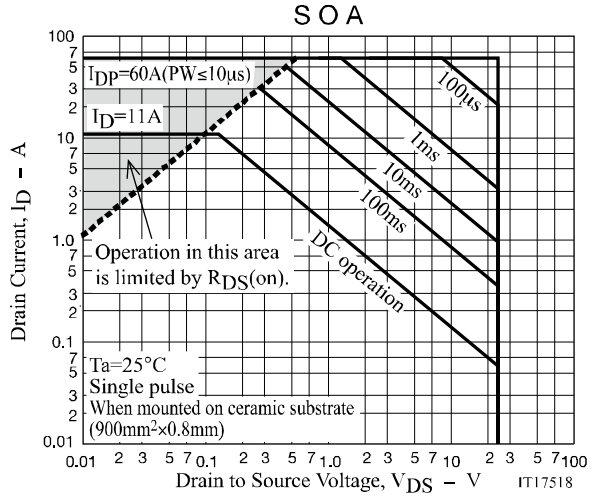

RDS(on) – Ta
Static Drain to Source
On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT17513
VGS=2.5V, ID=2.5A
VGS=3.1V, ID=5.0A
VGS=4.0V, ID=5.0A
VGS=4.5V, ID=5.0A

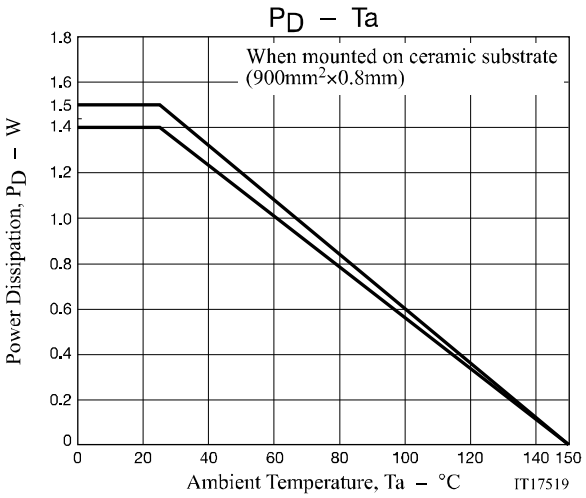

gFS – ID
Forward Transconductance, gFS – S
Drain Current, ID – A
HD17514
VDS=10V
Tc= –25°C
75°C
25°C

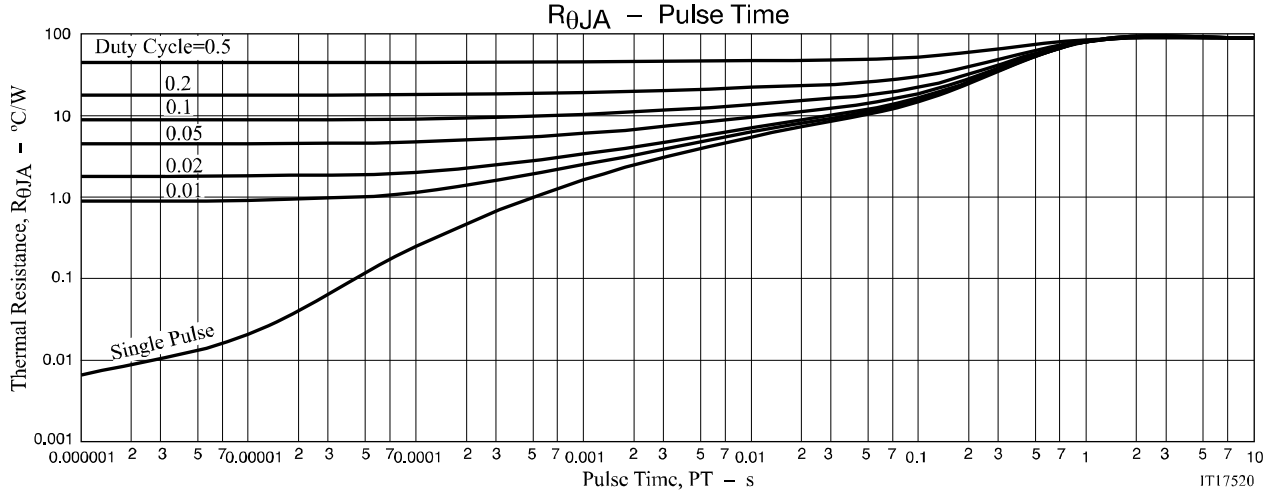

IS – VSD
Forward Diode Current, IS – A
Forward Diode to Source Voltage, VSD – V
IT17515
VGS=0V
Ta=75°C
25°C
–25°C


S/W Time – ID
Switching Time, S/W Time – ns
Drain Current, ID – A
IT17516
VDS=10V
VGS=4.5V
td(off)
tf
td(on)
tr


VGS – Qg
Gate to Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT17517
VDS=10V
ID=11A


S O A
I_{DP}=60A(PW≤10μs)
I_D=11A
100μs
1ms
10ms
100ms
DC operation
Operation in this area
is limited by R_{DS}(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate
(900mm²×0.8mm)
Drain Current, I_D – A
Drain to Source Voltage, V_{DS} – V
IT17518


P_D – Ta
When mounted on ceramic substrate
(900mm²×0.8mm)
Power Dissipation, P_D – W
Ambient Temperature, Ta – °C
IT17519


$R_{\theta JA}$ – Pulse Time
Duty Cycle=0.5
0.2
0.1
0.05
0.02
0.01
Single Pulse
Thermal Resistance, $R_{\theta JA}$ – °C/W
Pulse Time, PT – s
IT17520

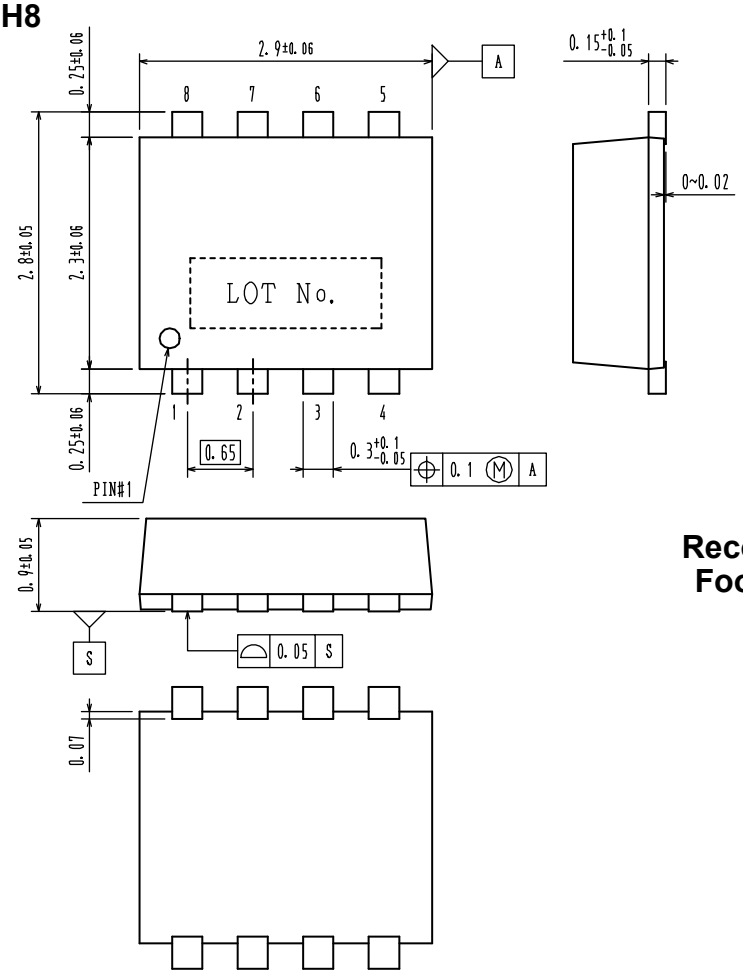
Package Dimensions

ECH8695R-TL-W

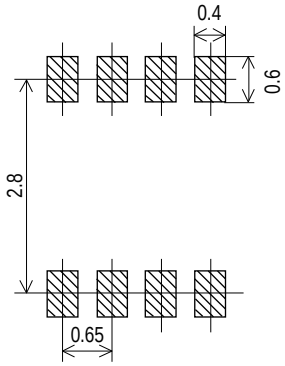
SOT-28FL/ECH8

CASE 318BF
ISSUE O
unit : mm

1: Source1
2: Gate1
3: Source2
4: Gate2
5: Drain
6: Drain
7: Drain
8: Drain



Recommended Soldering Footprint



Note on usage : Since the ECH8695R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

AMEYA360
Components Supply Platform

Authorized Distribution Brand :

Website :

Welcome to visit www.ameya360.com

Contact Us :

- ### Address :

  401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
  Minhang District, Shanghai , China

- ### Sales :

  Direct +86 (21) 6401-6692

  Email amall@ameya360.com

  QQ 800077892

  Skype ameyasales1 ameyasales2

- ### Customer Service :

  Email service@ameya360.com

- ### Partnership :

  Tel +86 (21) 64016692-8333

  Email mkt@ameya360.com