



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## ECH8419 — General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)} = 13\text{m}\Omega$  (typ.)
- 4V drive
- Halogen free compliance

### Specifications

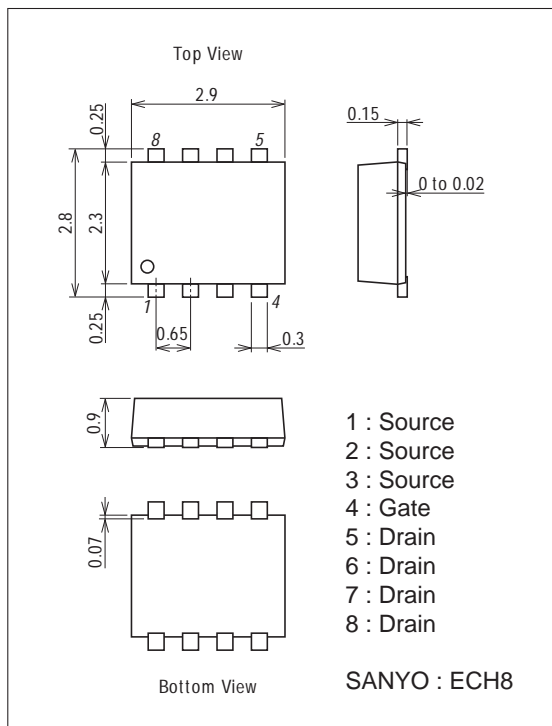
Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		35	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		9	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	40	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate ( $900\text{mm}^2 \times 0.8\text{mm}$ )	1.5	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		$-55$ to $+150$	$^\circ\text{C}$

### Package Dimensions

unit : mm (typ)

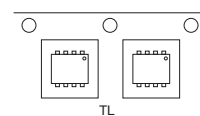
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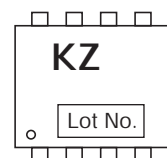
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

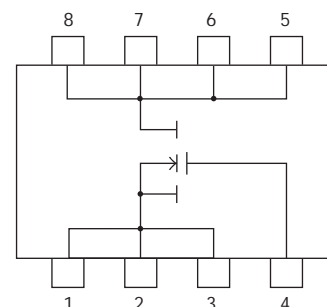
Packing Type : TL



Marking



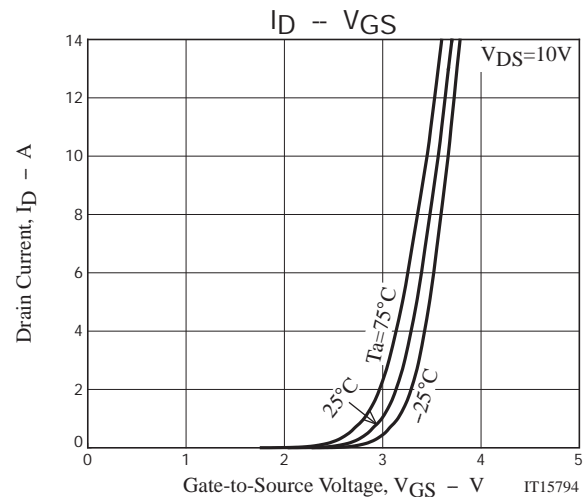
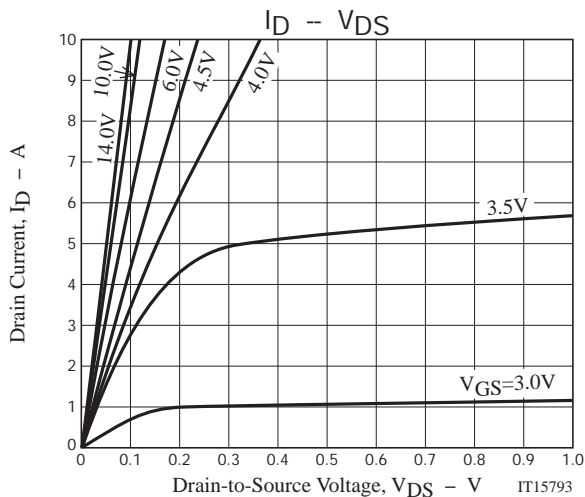
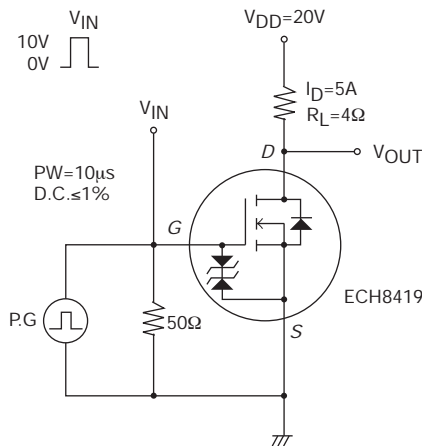
### Electrical Connection

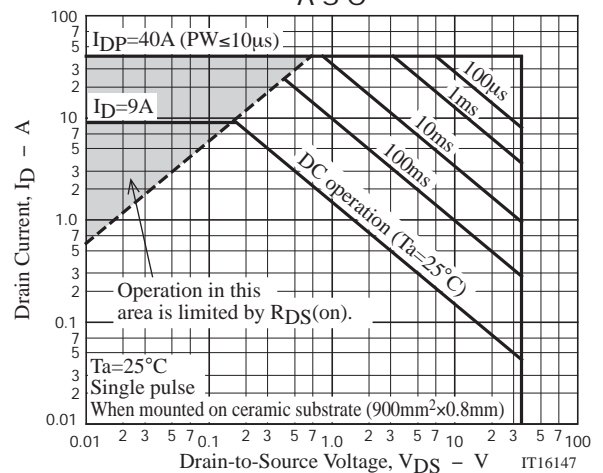
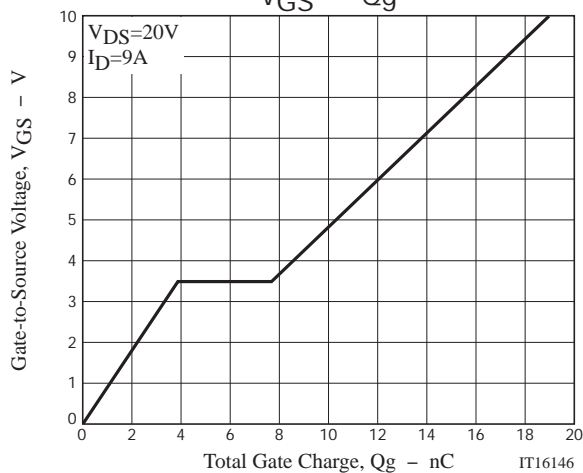
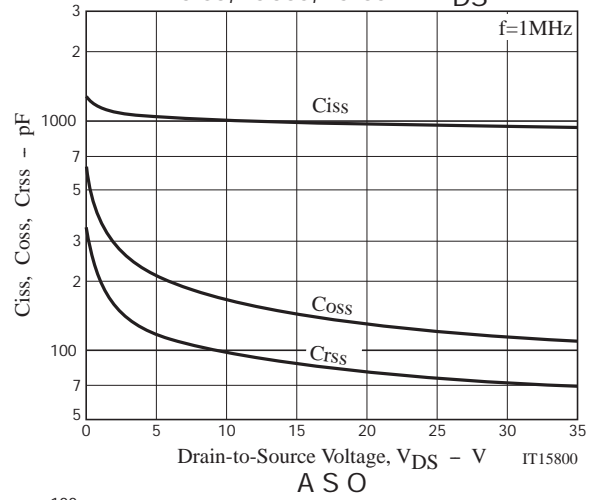
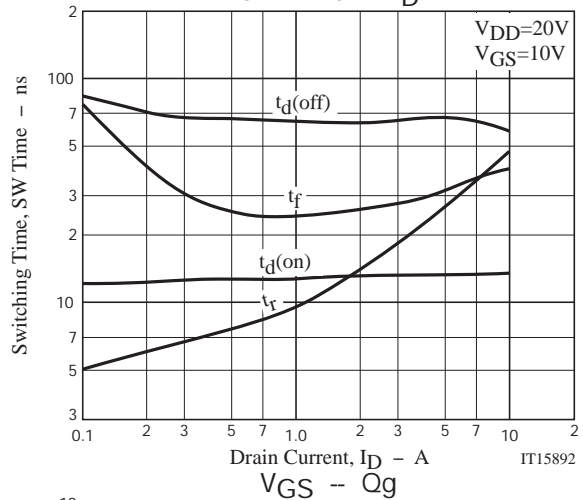
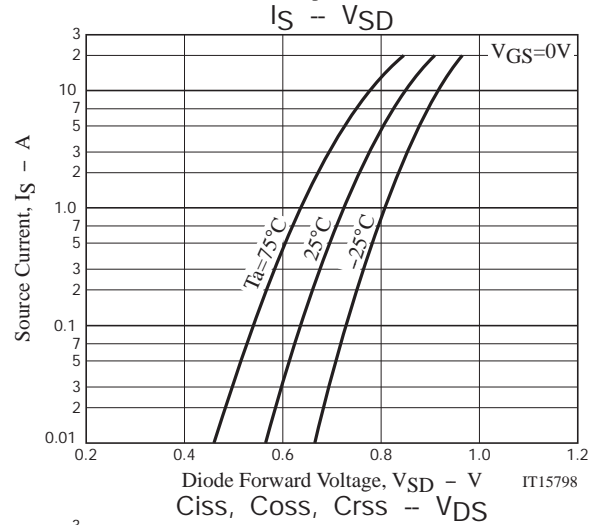
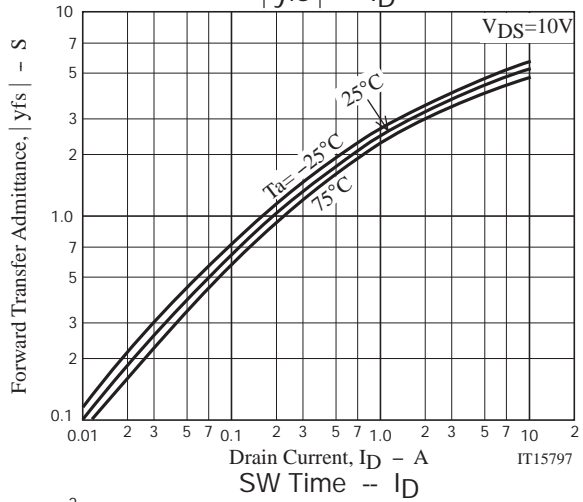
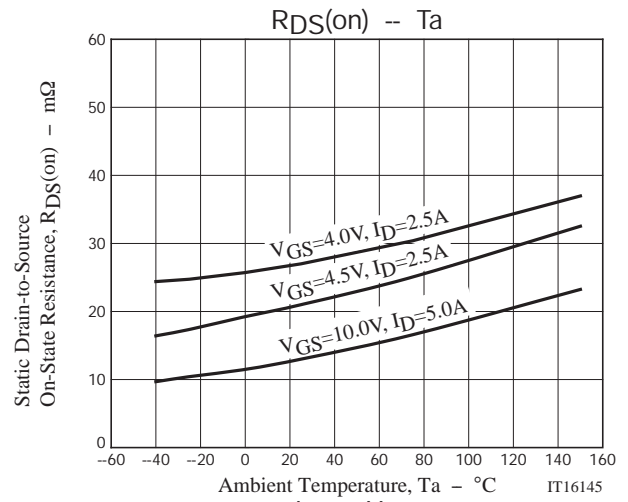
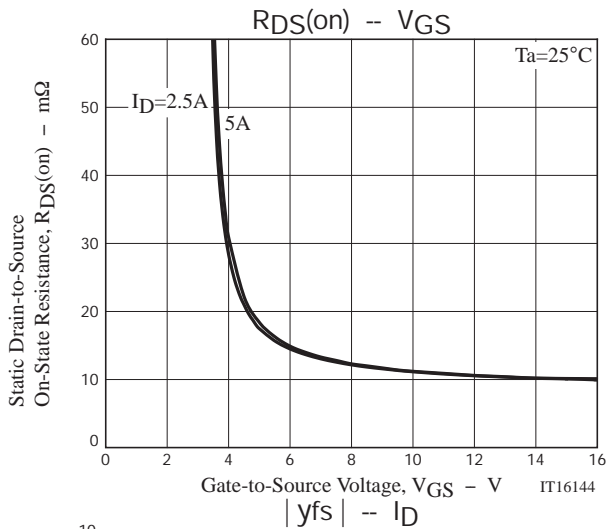


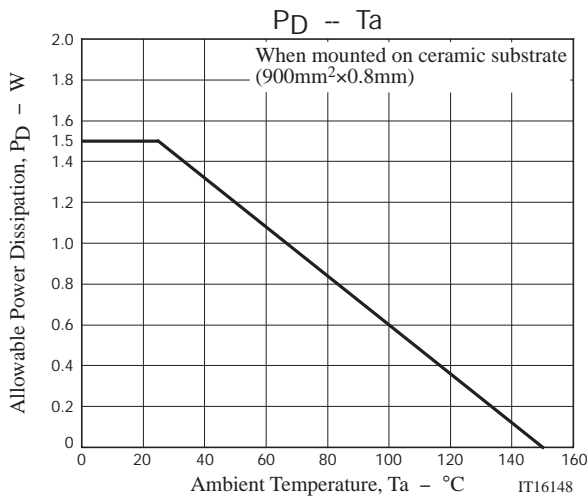
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	35			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=35V, V_{GS}=0V$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=5A$		4.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=5A, V_{GS}=10V$		13	17	$m\Omega$
	$R_{DS(on)2}$	$I_D=2.5A, V_{GS}=4.5V$		21	30	$m\Omega$
	$R_{DS(on)3}$	$I_D=2.5A, V_{GS}=4V$		27	38	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20V, f=1MHz$		960		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20V, f=1MHz$		130		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20V, f=1MHz$		80		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		13		ns
Rise Time	$t_r$	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		66		ns
Fall Time	$t_f$	See specified Test Circuit.		31		ns
Total Gate Charge	$Q_g$	$V_{DS}=20V, V_{GS}=10V, I_D=9A$		19		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=20V, V_{GS}=10V, I_D=9A$		3.9		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=20V, V_{GS}=10V, I_D=9A$		3.8		nC
Diode Forward Voltage	$V_{SD}$	$I_S=9A, V_{GS}=0V$		0.85	1.2	V

Switching Time Test Circuit







Note on usage : Since the ECH8419 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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