



SANYO Semiconductors

DATA SHEET

VEC2415 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Composite type facilitating high-density mounting.
- 4V drive.
- Mounting high 0.75mm.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		3	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycles $\leq 1\%$	12	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	0.9	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm ² ×0.8mm)	1.0	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=1.5\text{A}$		2.6		S

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VEC2415

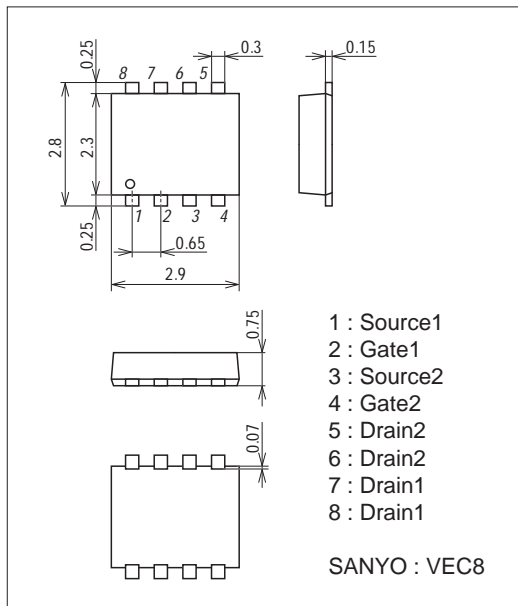
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=10V$		62	80	$m\Omega$
	$R_{DS(on)2}$	$I_D=0.75A, V_{GS}=4.5V$		76	106	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.75A, V_{GS}=4V$		83	116	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		505		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		57		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		37		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.3		ns
Rise Time	t_r	See specified Test Circuit.		7.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		41		ns
Fall Time	t_f	See specified Test Circuit.		22		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=3A$		10		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30V, V_{GS}=10V, I_D=3A$		1.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30V, V_{GS}=10V, I_D=3A$		2.1		nC
Diode Forward Voltage	V_{SD}	$I_S=3A, V_{GS}=0V$		0.81	1.2	V

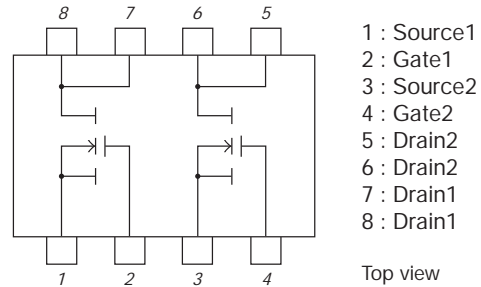
Package Dimensions

unit : mm (typ)

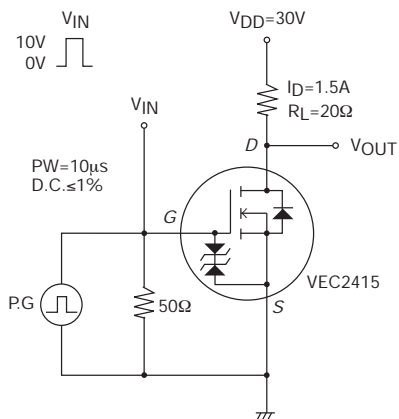
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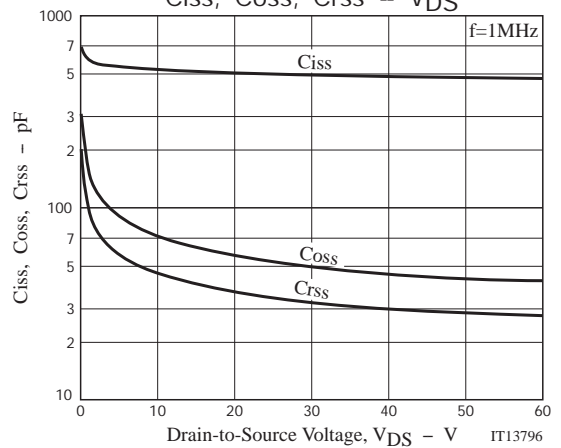
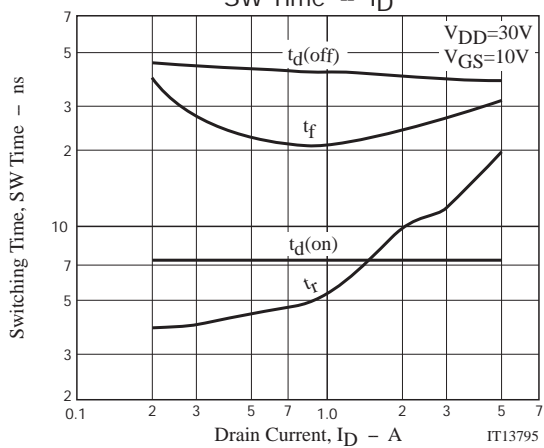
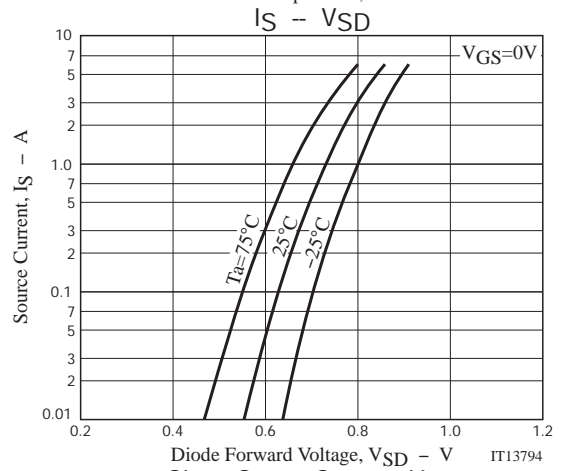
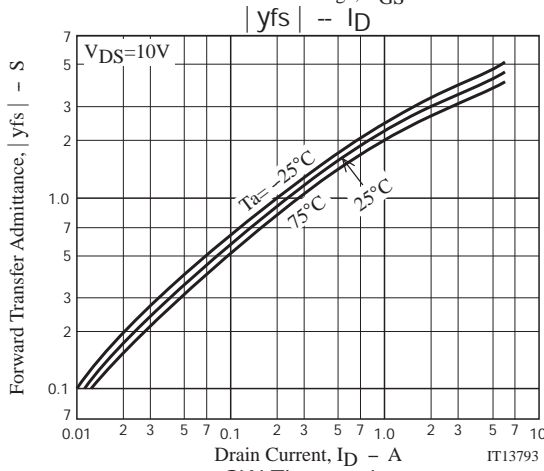
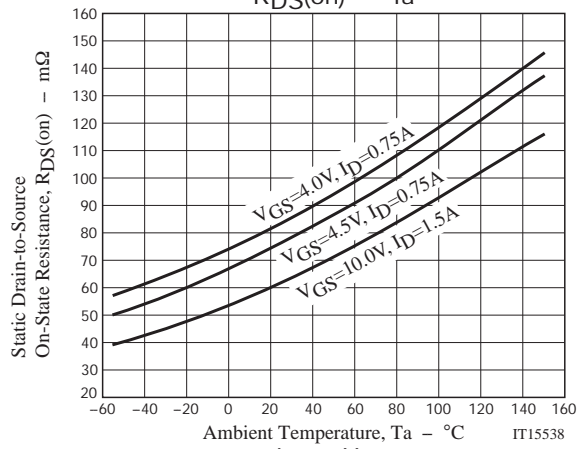
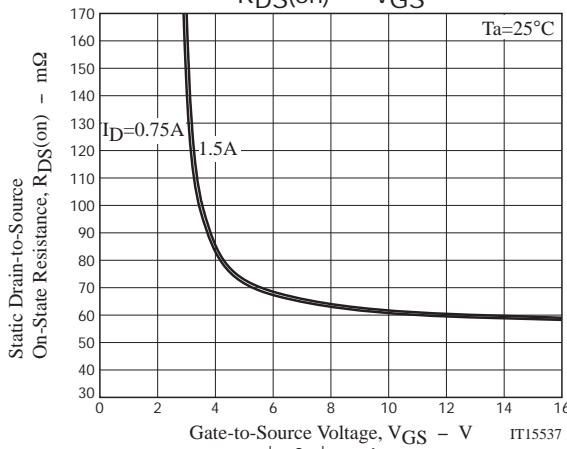
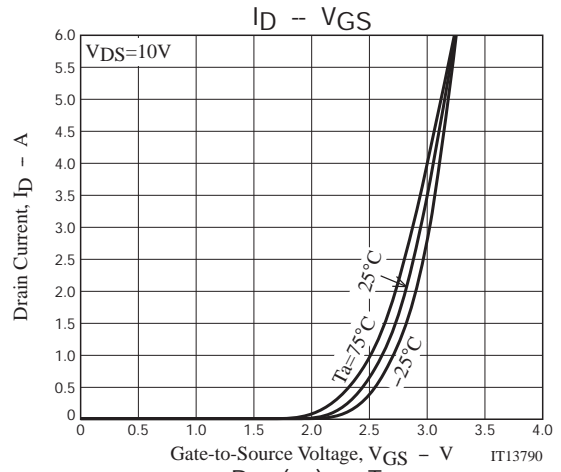
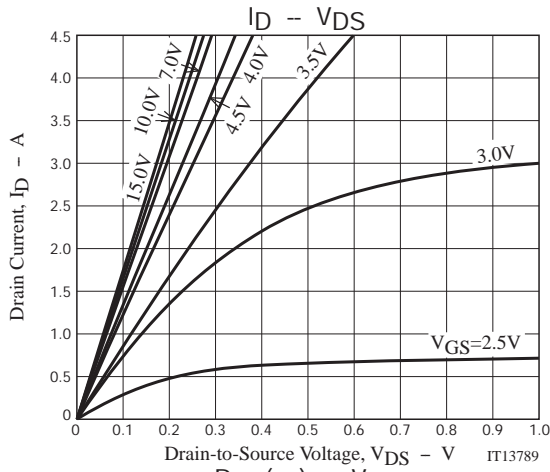


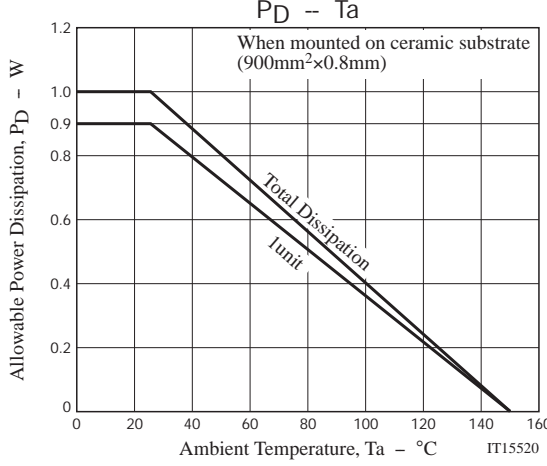
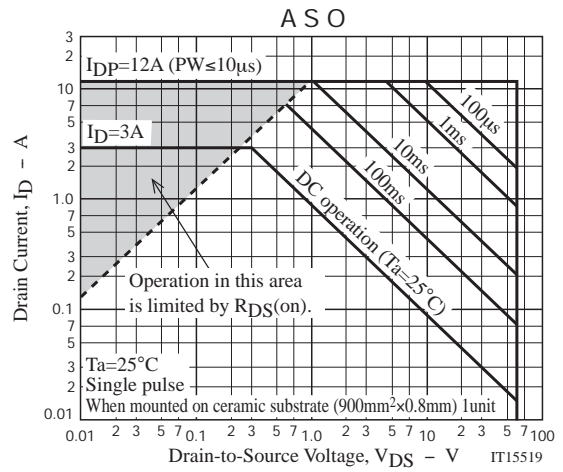
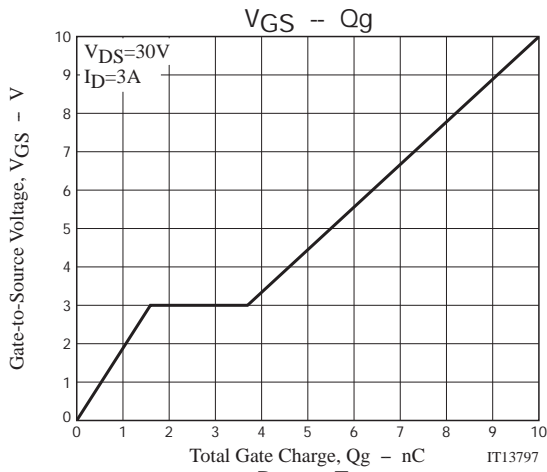
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the VEC2415 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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