



VEC2612 — General-Purpose Switching Device Applications

N-Channel and P-Channel Silicon MOSFETs

Features

- The best suited for inverter applications.
- The VEC2612 incorporates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance, thereby enabling high-density mounting.
- 4V drive.
- Mounting height 0.75mm.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V _{DSS}		30	-30	V
Gate-to-Source Voltage	V _{GSS}		±20	±20	V
Drain Current (DC)	I _D		3	-3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	12	-12	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm)1unit	0.9		W
Total Dissipation	P _T	Mounted on a ceramic board (900mm ² ×0.8mm)	1.0		W
Channel Temperature	T _{ch}		150		°C
Storage Temperature	T _{stg}		-55 to +150		°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	I _D =1mA, V _{GS} =0V	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
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 =1.5A	1.8	3.0		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =1.5A, V _{GS} =10V		73	95	mΩ
	R _{DS(on)2}	I _D =1A, V _{GS} =4V		115	161	mΩ
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		180		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		42		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		25		pF

Marking : CR

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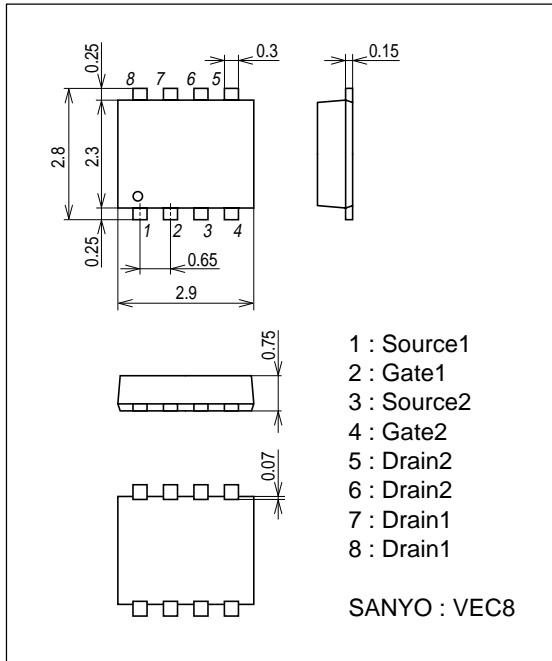
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7		ns
Rise Time	t_r	See specified Test Circuit.		2.8		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		18.5		ns
Fall Time	t_f	See specified Test Circuit.		4.4		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		4.9		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		0.93		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		0.93		nC
Diode Forward Voltage	V_{SD}	$I_S=3A, V_{GS}=0V$		0.85	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.0		-2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-1.5A$	2.0	3.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1.5A, V_{GS}=-10V$		65	86	$m\Omega$
	$R_{DS(on)2}$	$I_D=-1A, V_{GS}=-4V$		117	168	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		510		pF
Output Capacitance	C_{oss}	$V_{DS}=-10V, f=1MHz$		115		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10V, f=1MHz$		78		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		17		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		53		ns
Fall Time	t_f	See specified Test Circuit.		35		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		11		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		2.4		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-3A$		1.7		nC
Diode Forward Voltage	V_{SD}	$I_S=-3A, V_{GS}=0V$		-0.87	-1.2	V

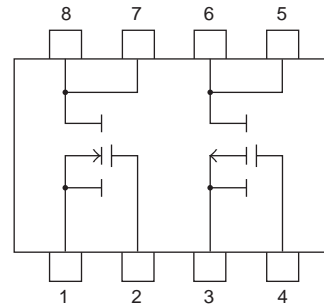
Package Dimensions

unit : mm (typ)

7012-002



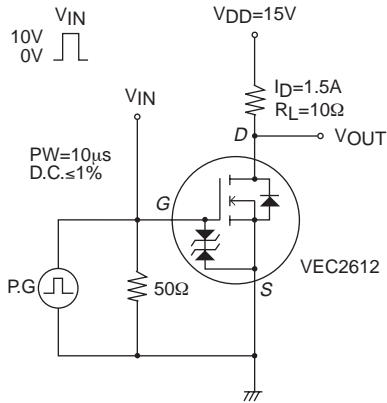
Electrical Connection



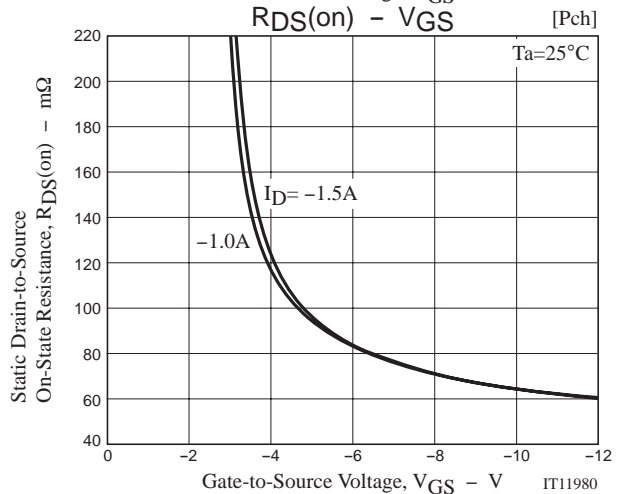
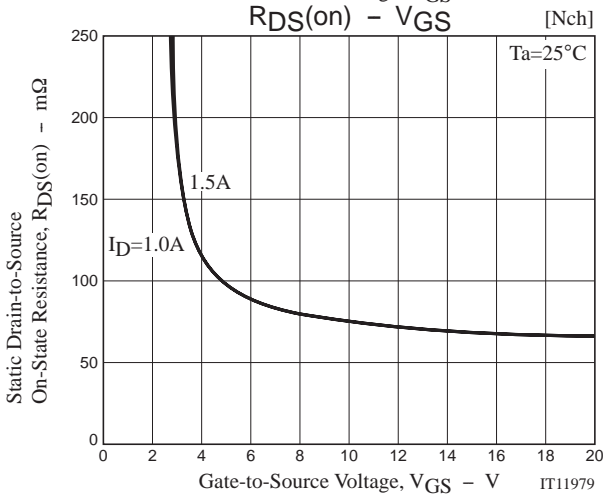
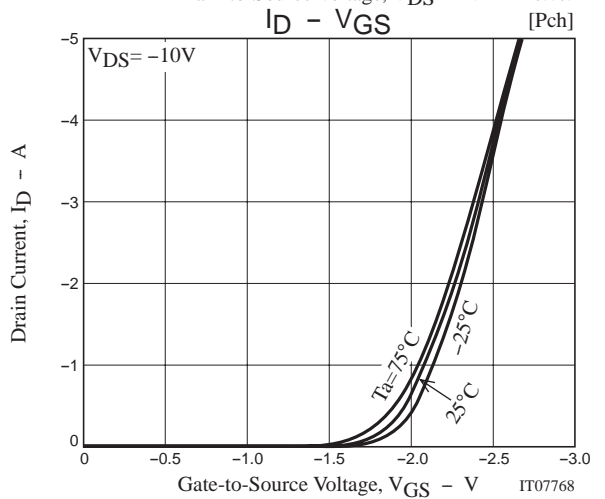
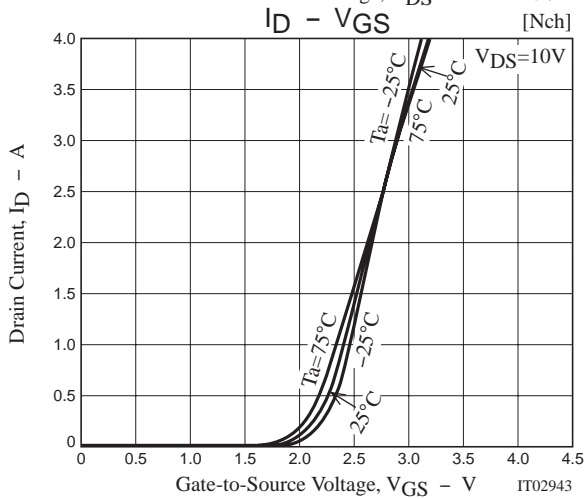
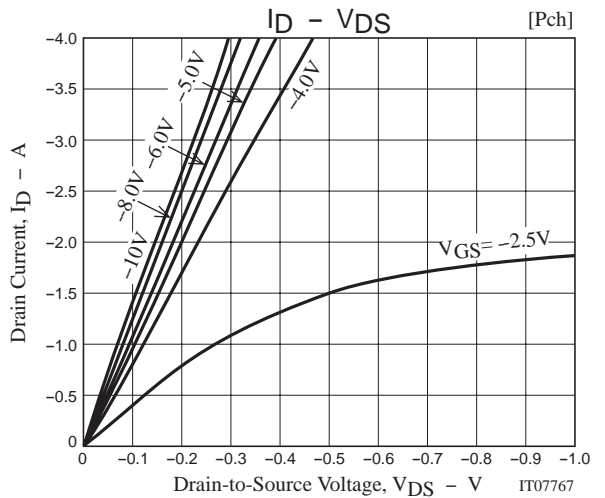
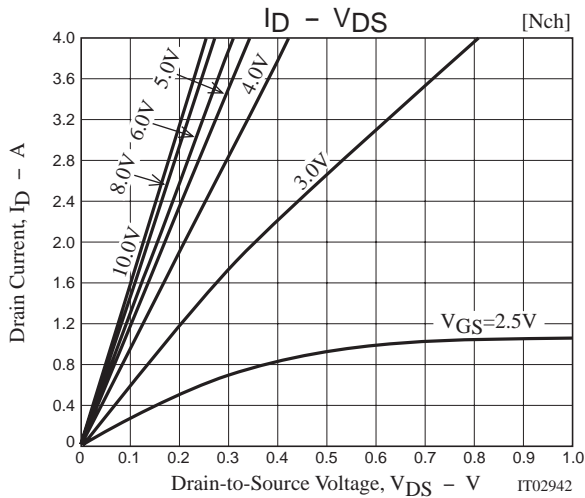
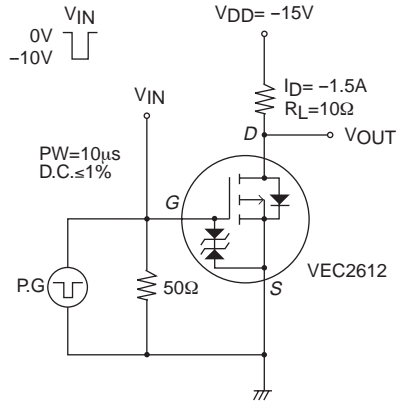
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Switching Time Test Circuit

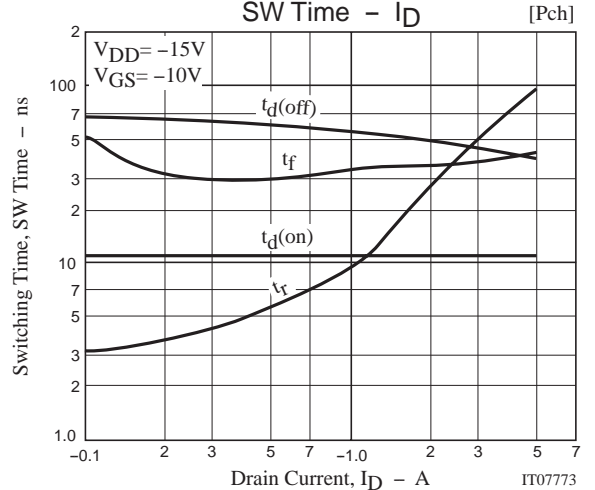
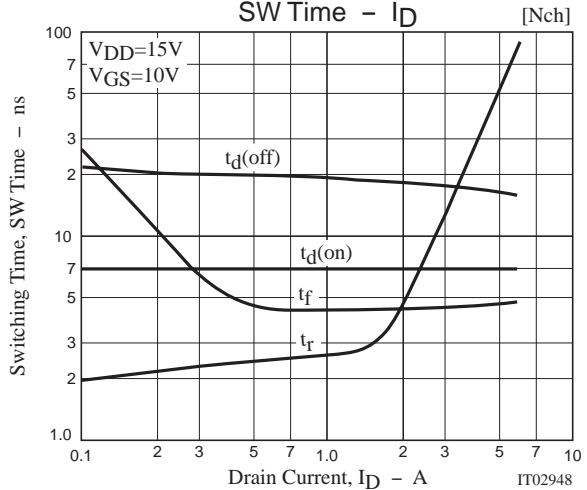
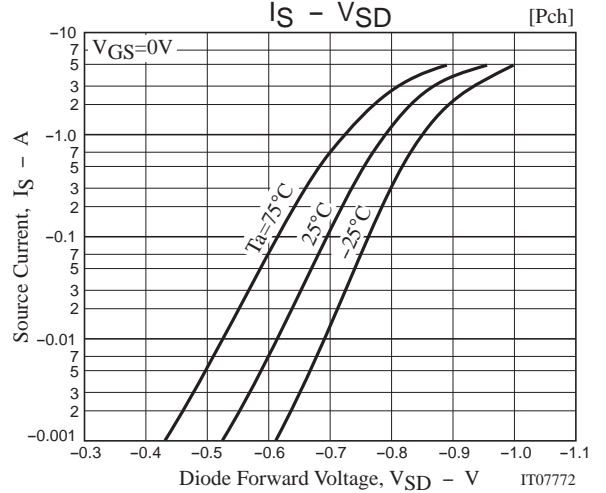
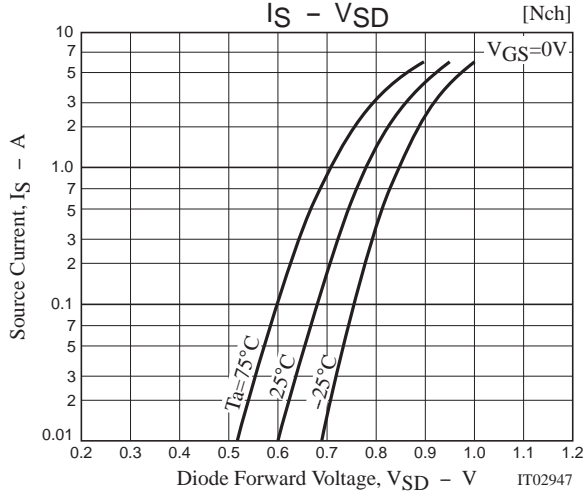
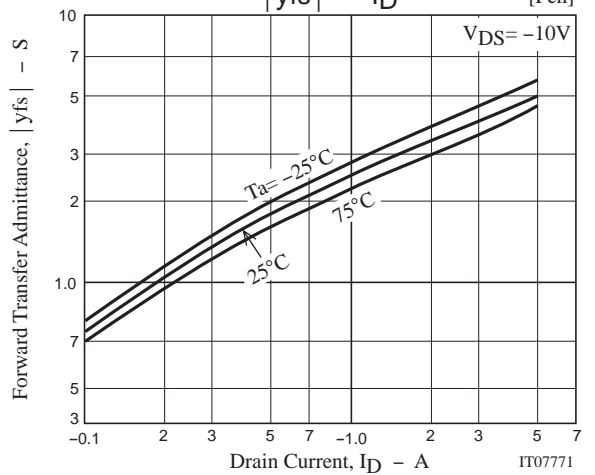
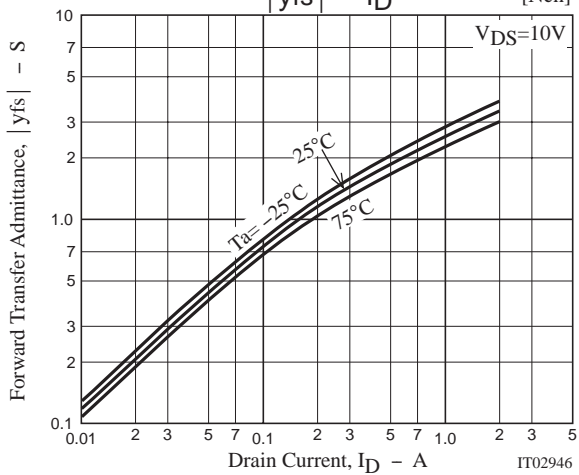
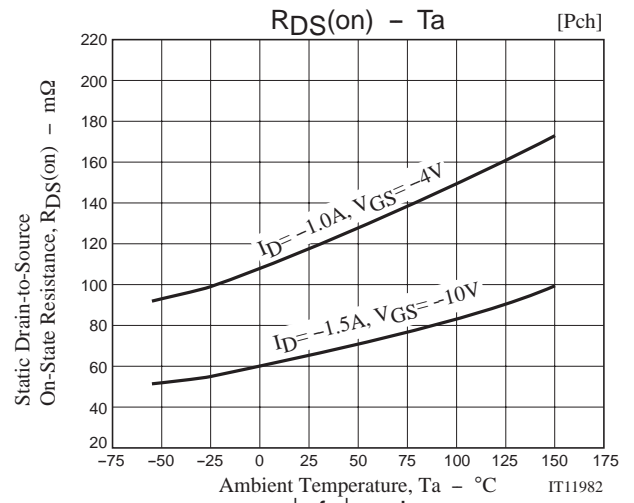
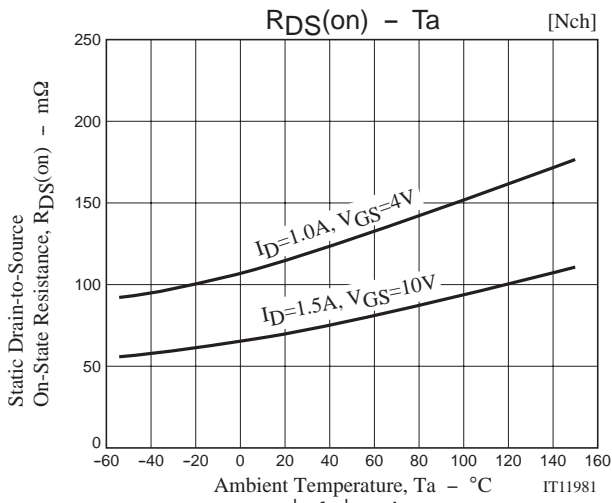
[N-channel]



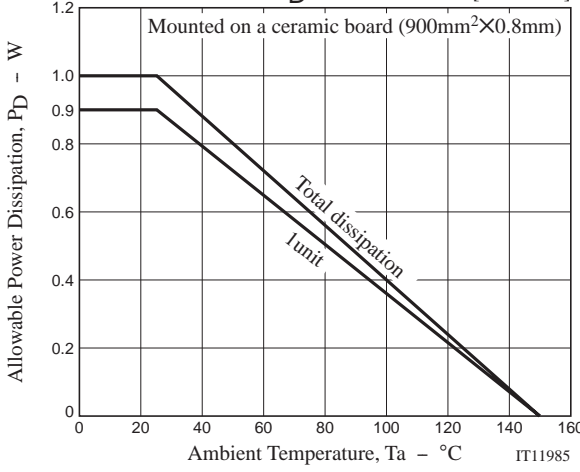
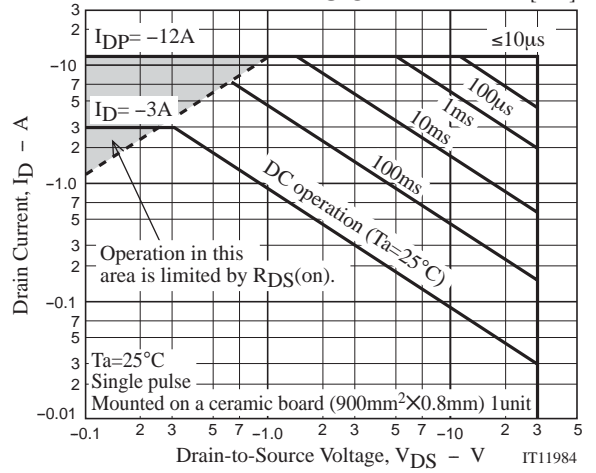
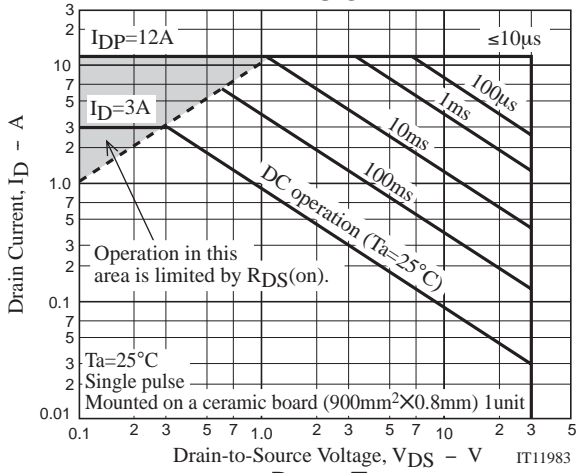
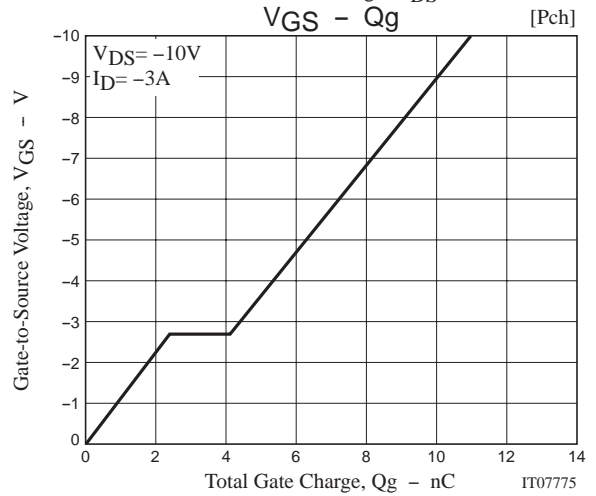
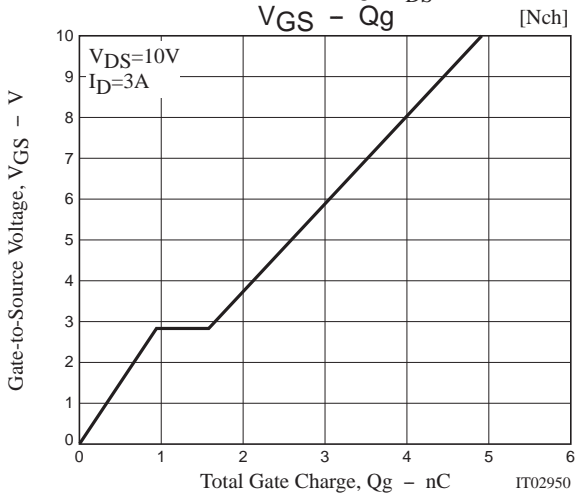
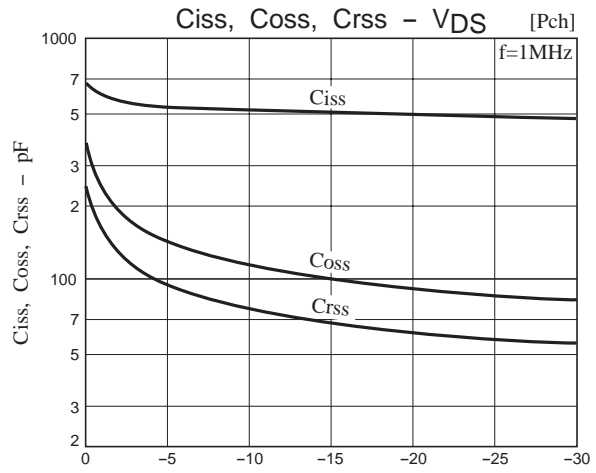
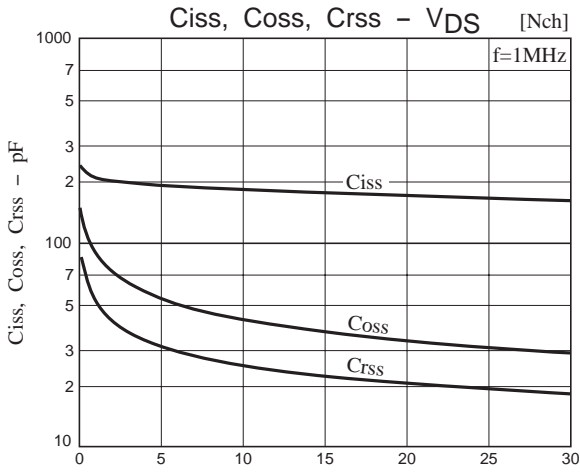
[P-channel]



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VEC2612



Note on usage : Since the VEC2612 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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