Ordering number : ENA0856

SANYO Semiconductors
DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

VEC2606 — General-Purpose Switching Device Applications

Features

- Best suited for inverter applications.
- Low ON-resistance.
- The VEC2606 incorporates an N-channel MOSFET and a P-channel MOSFET 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}		60	−60	V
Gate-to-Source Voltage	V_{GSS}		±20	±20	V
Drain Current (DC)	I_D		2	−1.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	8	−6	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²X0.8mm)1unit	0.9		W
Total Dissipation	P_T	Mounted on a ceramic board (900mm²X0.8mm)	1.0		W
Channel Temperature	Tch		150		°C
Storage Temperature	Tstg		−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	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, 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	$\|yfs\|$	V_{DS}=10V, I_D=1A	1.44	2.4		S

Marking : BX

Continued on next page.

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TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

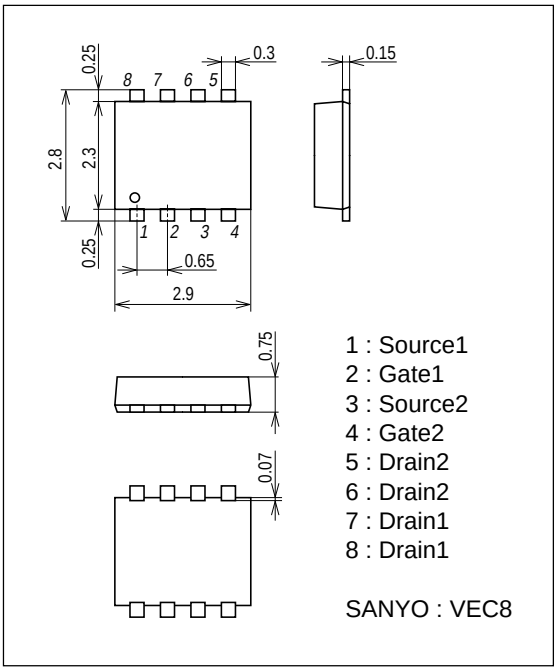
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=1A, V_{GS}=10V		80	104	mΩ
	$R_{DS}(on)2$	I_D=1A, V_{GS}=4V		108	151	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		490		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		60		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		40		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.8		ns
Rise Time	t_r	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		44		ns
Fall Time	t_f	See specified Test Circuit.		26		ns
Total Gate Charge	Qg	V_{DS}=30V, V_{GS}=10V, I_D=2A		10		nC
Gate-to-Source Charge	Qgs	V_{DS}=30V, V_{GS}=10V, I_D=2A		1.2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=30V, V_{GS}=10V, I_D=2A		2.3		nC
Diode Forward Voltage	V_{SD}	I_S=2A, V_{GS}=0V		0.8	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-1mA, V_{GS}=0V	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, 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	$\|yfs\|$	V_{DS}=-10V, I_D=-0.75A	1.5	2.5		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-0.75A, V_{GS}=-10V		185	240	mΩ
	$R_{DS}(on)2$	I_D=-0.75A, V_{GS}=-4V		240	336	mΩ
Input Capacitance	Ciss	V_{DS}=-20V, f=1MHz		550		pF
Output Capacitance	Coss	V_{DS}=-20V, f=1MHz		50		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-20V, f=1MHz		30		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.4		ns
Rise Time	t_r	See specified Test Circuit.		7.4		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		59		ns
Fall Time	t_f	See specified Test Circuit.		27		ns
Total Gate Charge	Qg	V_{DS}=-30V, V_{GS}=-10V, I_D=-1.5A		10		nC
Gate-to-Source Charge	Qgs	V_{DS}=-30V, V_{GS}=-10V, I_D=-1.5A		1.2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=-30V, V_{GS}=-10V, I_D=-1.5A		2.5		nC
Diode Forward Voltage	V_{SD}	I_S=-1.5A, V_{GS}=0V		-0.8	-1.2	V

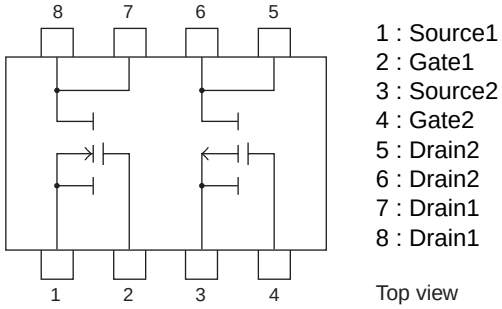
Package Dimensions

unit : mm (typ)

7012-002

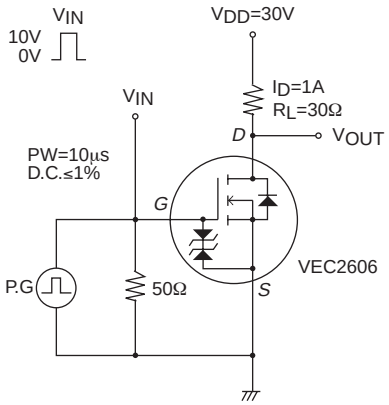


Electrical Connection



Switching Time Test Circuit

[N-channel]



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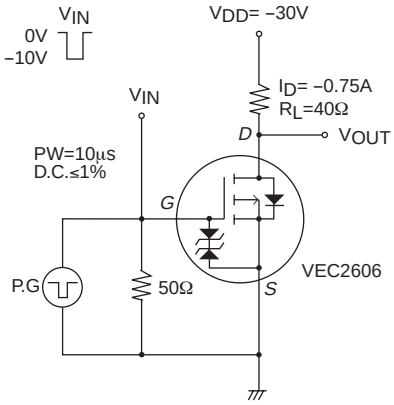
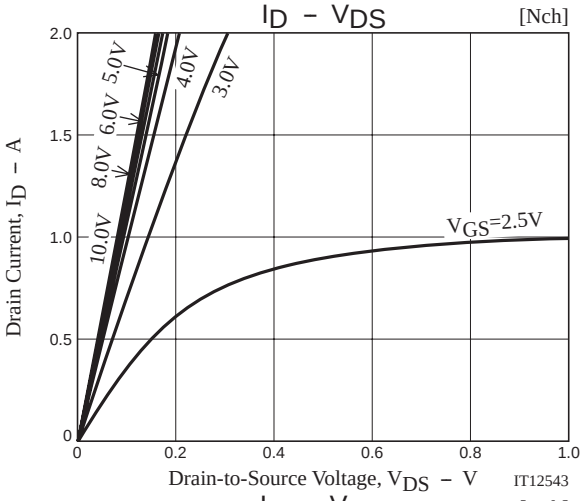
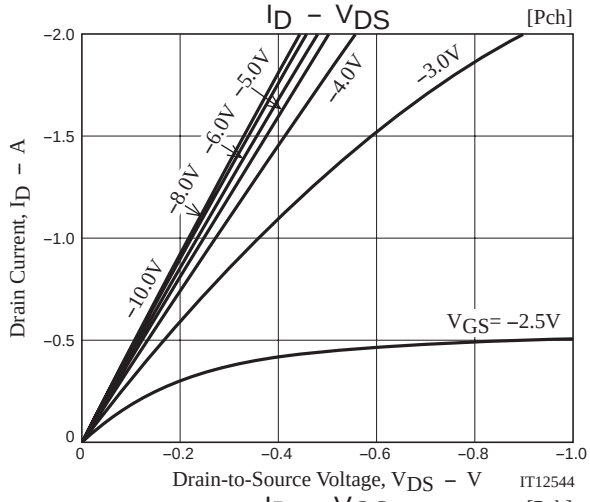
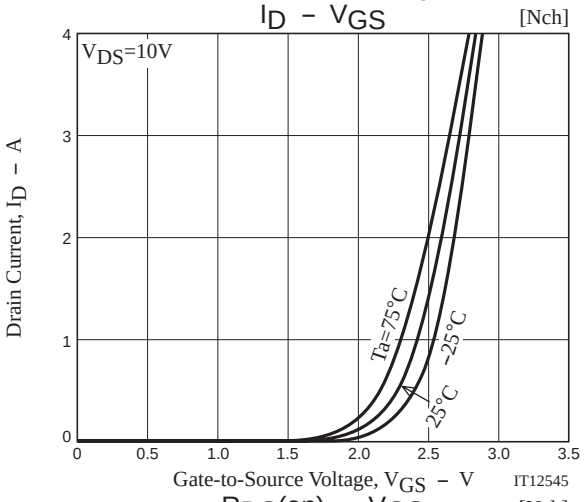
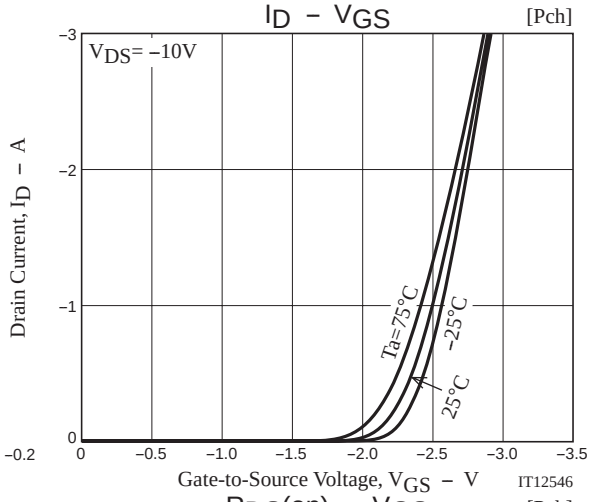
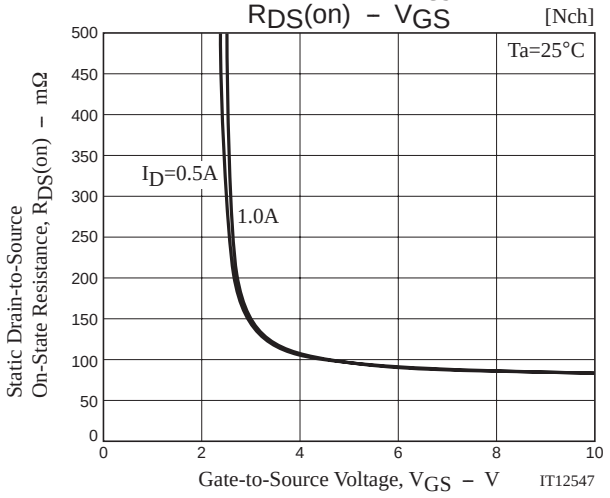


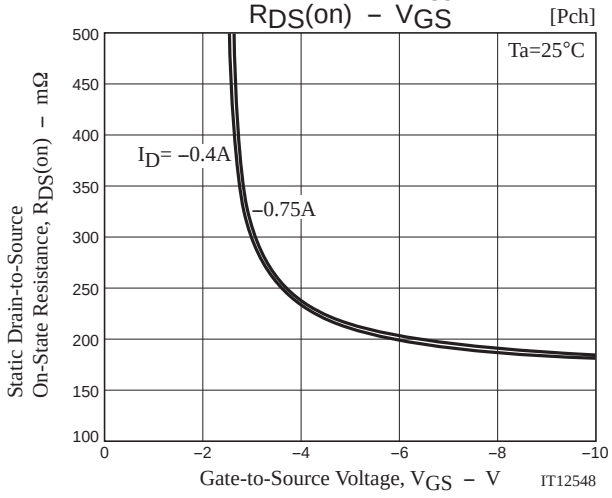


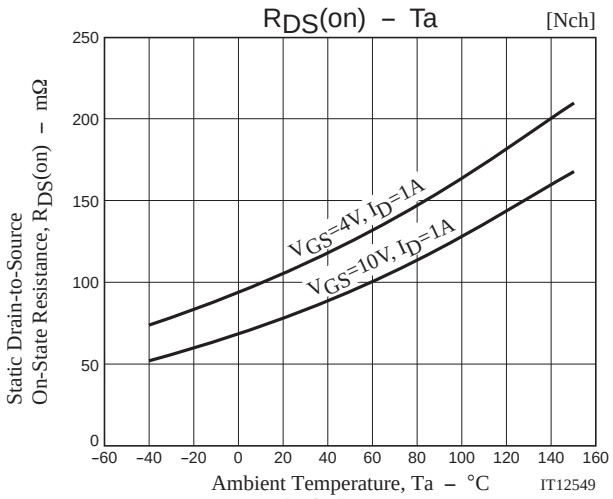


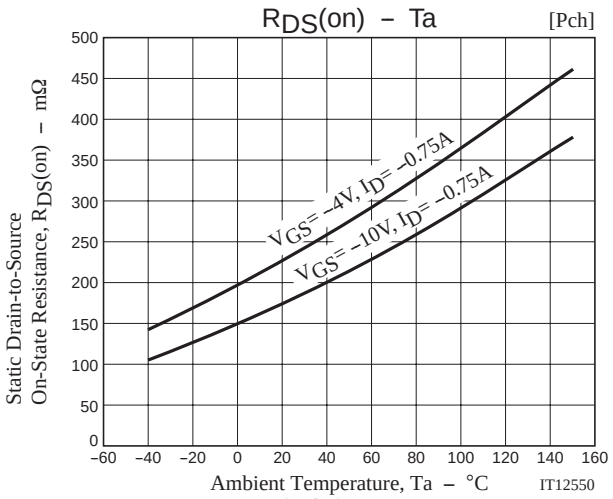


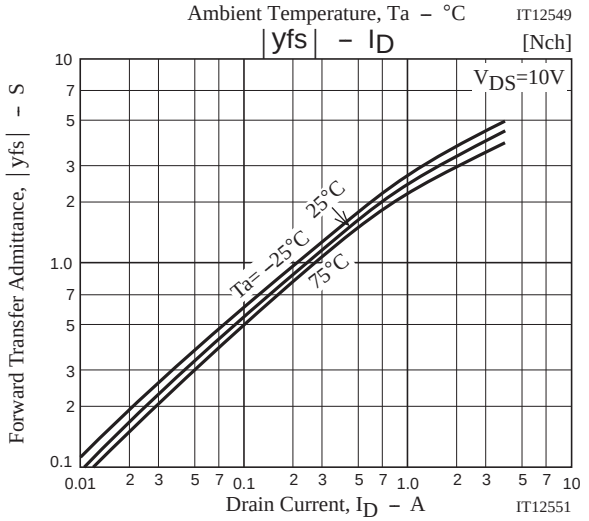


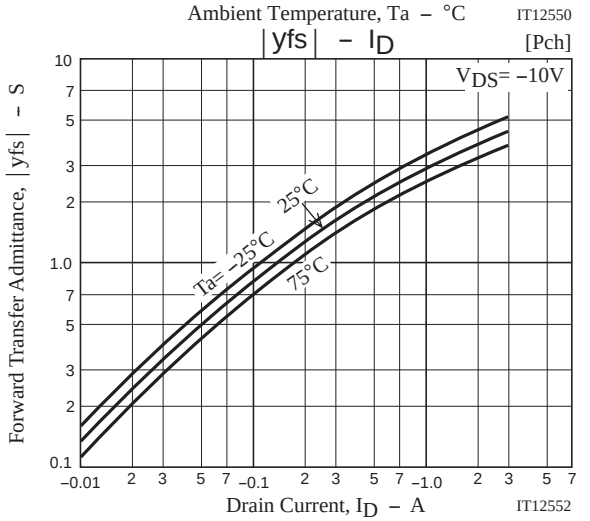


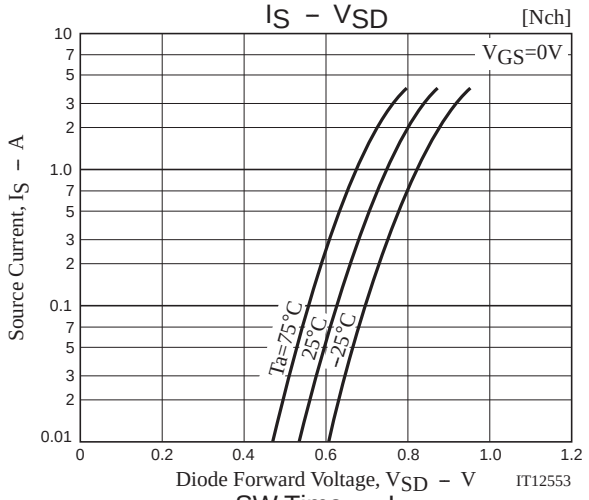


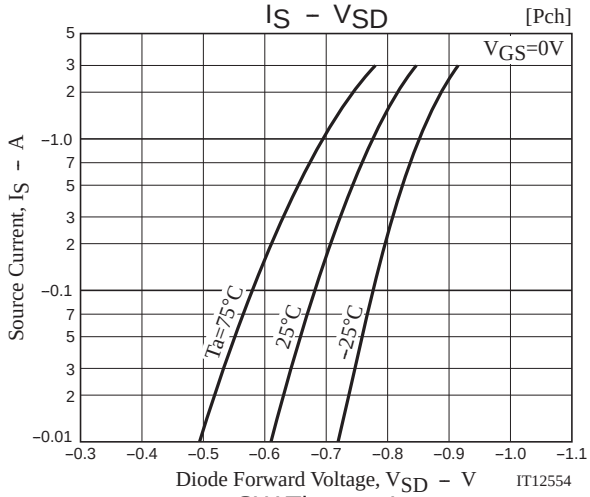

RDS(on) – Ta
[Nch]
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
VGS=4V, ID=1A
VGS=10V, ID=1A
Ambient Temperature, Ta – °C
IT12549

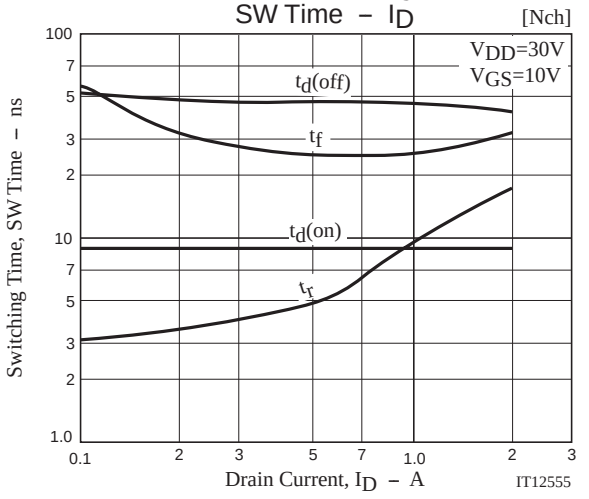

RDS(on) – Ta
[Pch]
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
VGS= –4V, ID= –0.75A
VGS= –10V, ID= –0.75A
Ambient Temperature, Ta – °C
IT12550

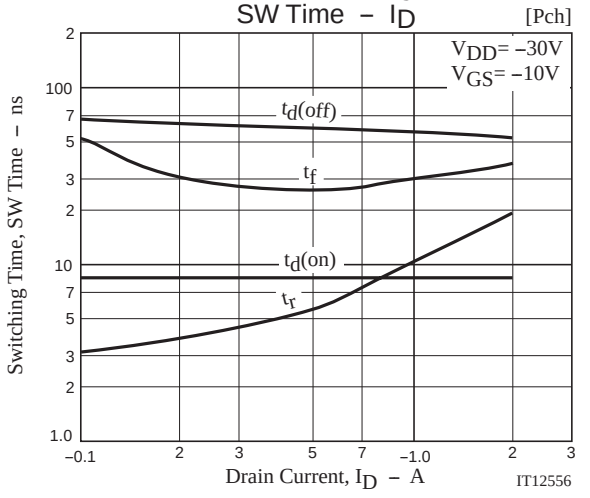

|yfs| – ID
[Nch]
VDS=10V
Forward Transfer Admittance, |yfs| – S
Ta= –25°C
25°C
75°C
Drain Current, ID – A
IT12551


|yfs| – ID
[Pch]
VDS= –10V
Forward Transfer Admittance, |yfs| – S
Ta= –25°C
25°C
75°C
Drain Current, ID – A
IT12552

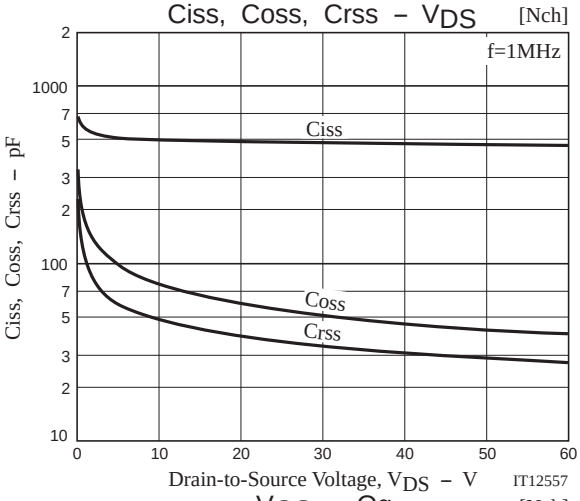

IS – VSD
[Nch]
VGS=0V
Source Current, IS – A
Ta=75°C
25°C
–25°C
Diode Forward Voltage, VSD – V
IT12553


IS – VSD
[Pch]
VGS=0V
Source Current, IS – A
Ta=75°C
25°C
–25°C
Diode Forward Voltage, VSD – V
IT12554

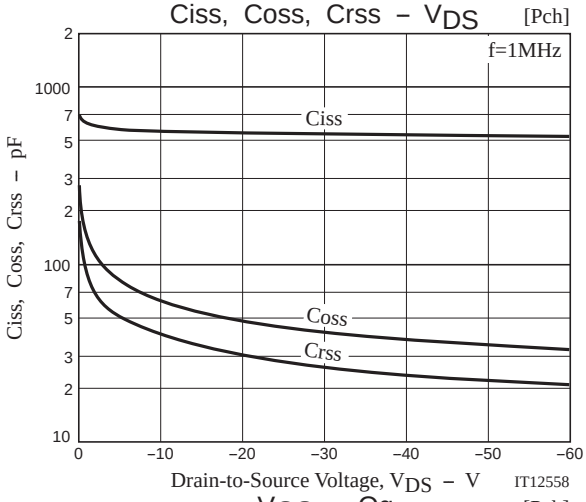

SW Time – ID
[Nch]
VDD=30V
VGS=10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT12555


SW Time – ID
[Pch]
VDD= –30V
VGS= –10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT12556

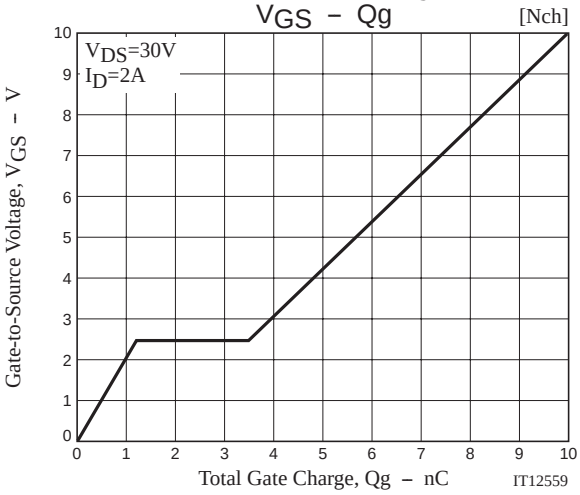
Ciss, Coss, Crss – V_{DS} [Nch]



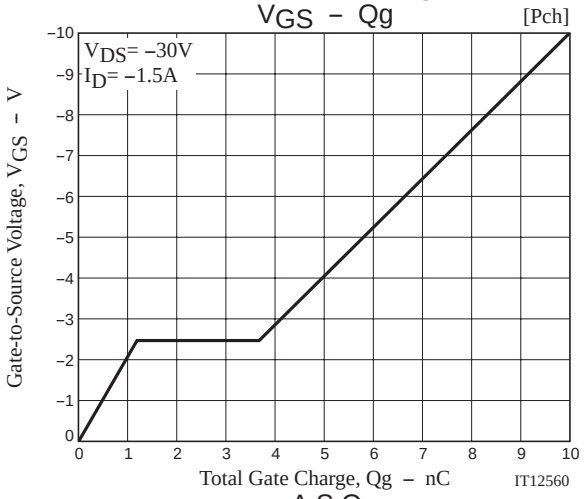
Ciss, Coss, Crss – V_{DS} [Pch]



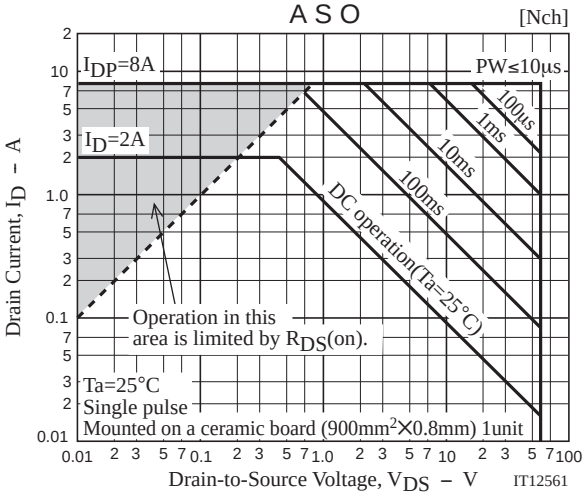
V_{GS} – Qg [Nch]



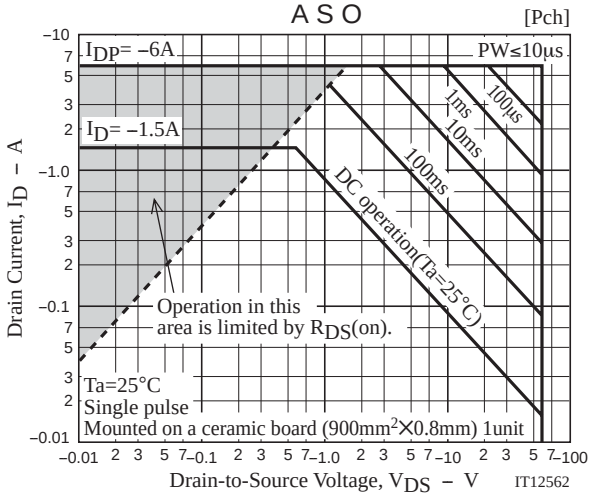
V_{GS} – Qg [Pch]



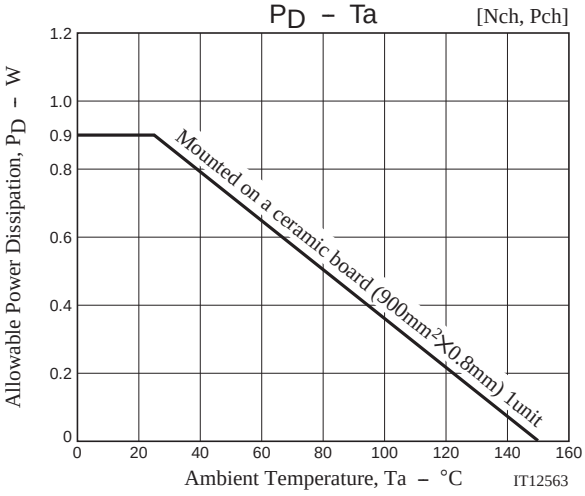
A S O [Nch]



A S O [Pch]



P_D – Ta [Nch, Pch]



Note on usage : Since the VEC2606 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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