



FW360

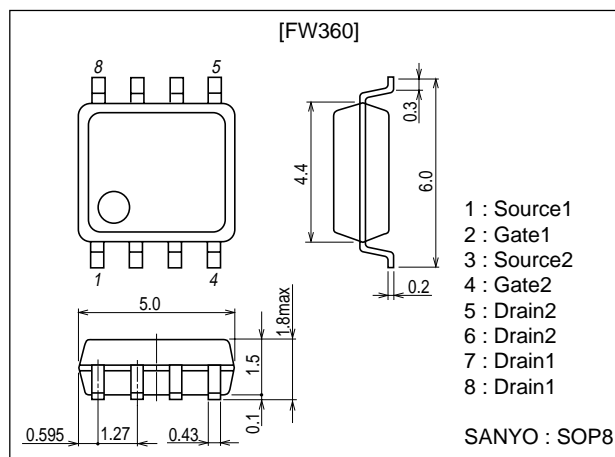
Ultrahigh-Speed Switching, Motor Driver Applications

Features

- The FW360 incorporates an N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance and high-speed switching, thereby enabling high-density mounting.
- Excellent ON-resistance characteristic.
- 4V drive.

Package Dimensions

unit : mm
2129



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings		Unit
			N-channel	P-channel	
Drain-to-Source Voltage	V _{DSS}		100	-100	V
Gate-to-Source Voltage	V _{GSS}		±20	±20	V
Drain Current (DC)	I _D		2	-2	A
Drain Current (PW≤100ms)	I _D	duty cycle≤1%	5	-5	A
Drain Current (PW≤10μs)	I _{DP}	duty cycle≤1%	8	-8	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (1200mm²×0.8mm)1unit(PW≤10s)	1.4	1.8	W
Total Dissipation	P _T	Mounted on a ceramic board (1200mm²×0.8mm)(PW≤10s)		2.0	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} =0	100			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0			±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 =1A	1.8	3		S

Marking : W360

Continued on next page.

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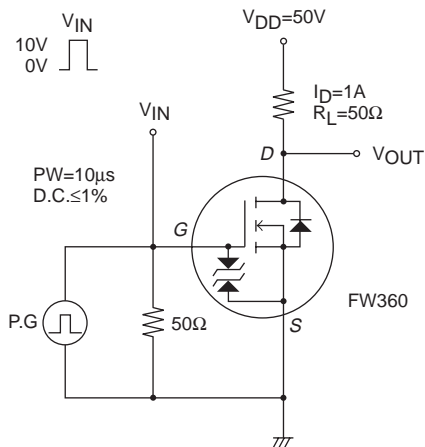
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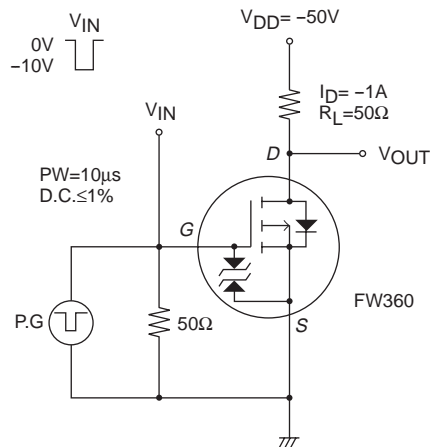
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1A, V_{GS}=10V$		175	220	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=4V$		220	310	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		530		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		45		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		35		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		4		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		58		ns
Fall Time	t_f	See specified Test Circuit.		25		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=2A$		13		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=2A$		2.1		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=2A$		2.8		nC
Diode Forward Voltage	V_{SD}	$I_S=2A, V_{GS}=0$		0.82	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-100V, V_{GS}=0$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-1A$	1.8	3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-1A, V_{GS}=-10V$		240	315	$m\Omega$
	$R_{DS(on)2}$	$I_D=-1A, V_{GS}=-4V$		320	450	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-20V, f=1MHz$		935		pF
Output Capacitance	C_{oss}	$V_{DS}=-20V, f=1MHz$		71		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20V, f=1MHz$		48		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		12		ns
Rise Time	t_r	See specified Test Circuit.		50		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		92		ns
Fall Time	t_f	See specified Test Circuit.		52		ns
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		20		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		4.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10V, V_{GS}=-10V, I_D=-2A$		4.5		nC
Diode Forward Voltage	V_{SD}	$I_S=-2A, V_{GS}=0$		0.83	1.2	V

Switching Time Test Circuit

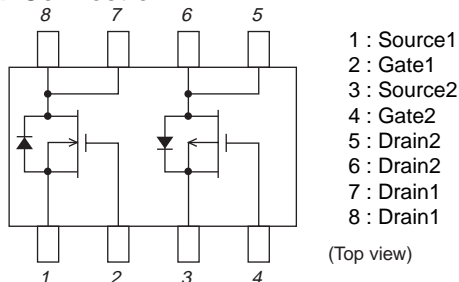
[N-channel]



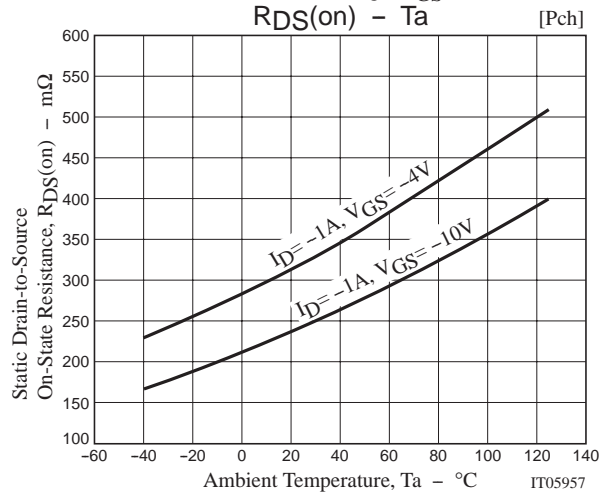
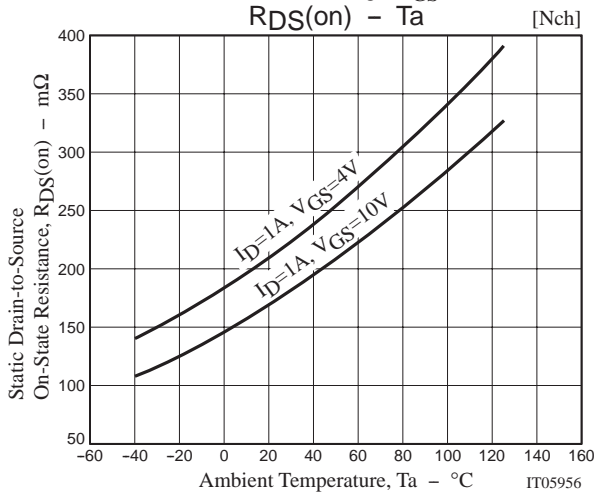
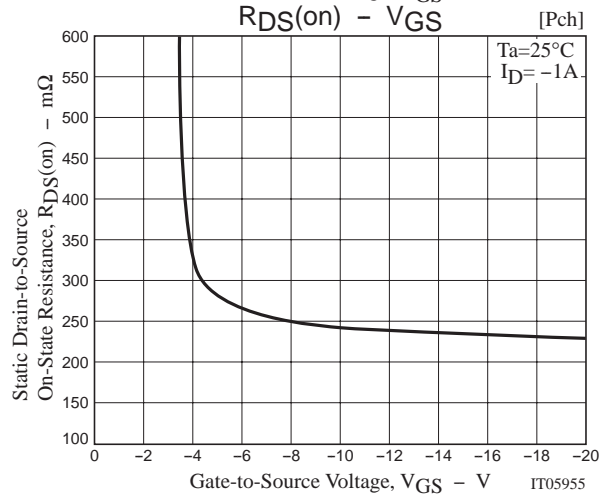
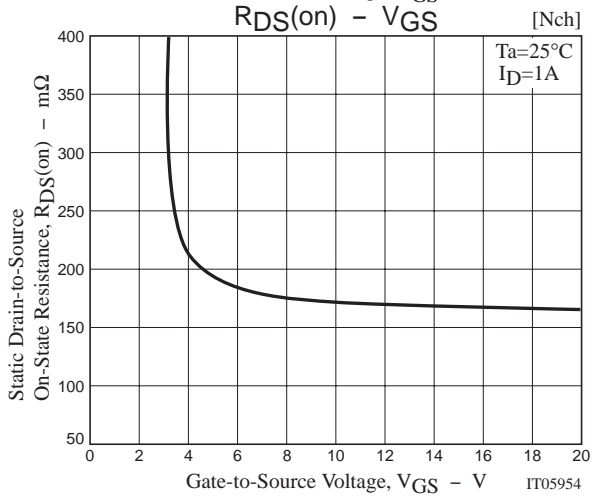
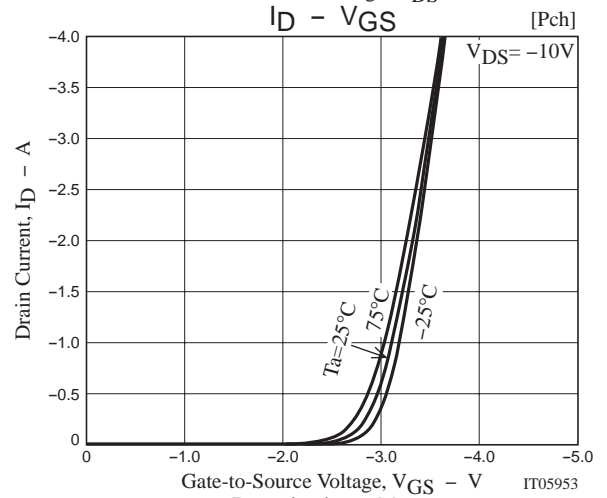
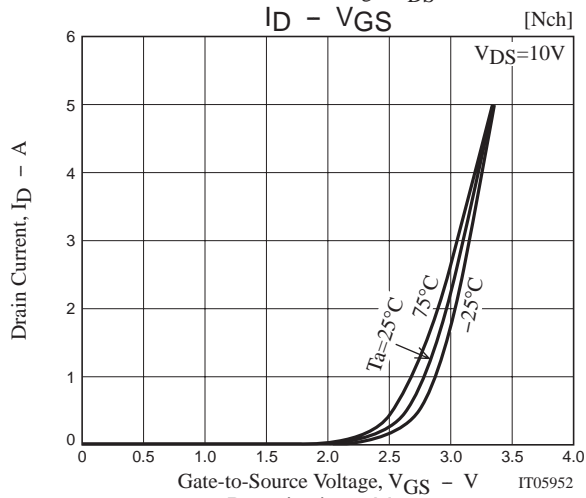
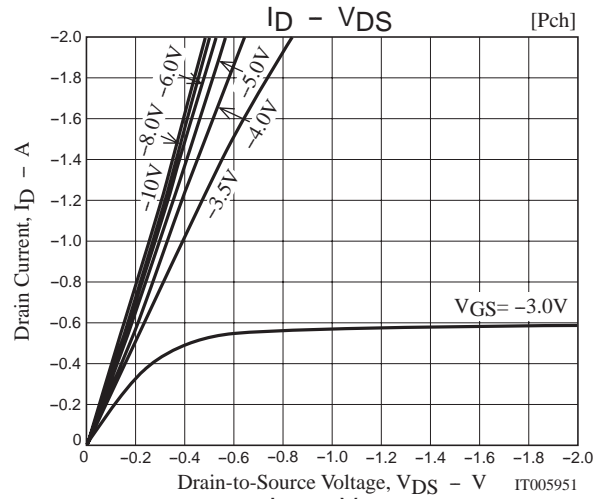
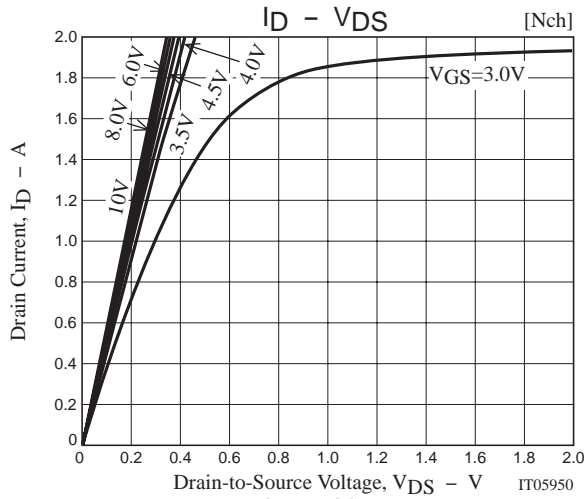
[P-channel]



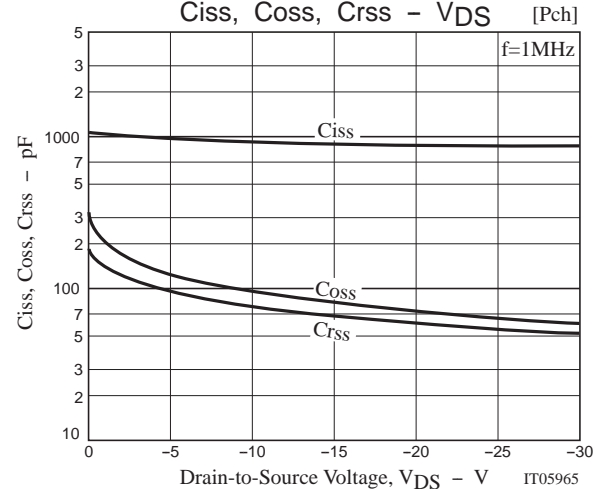
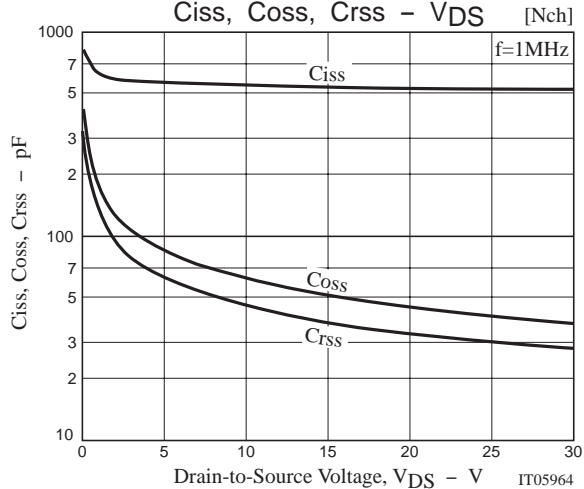
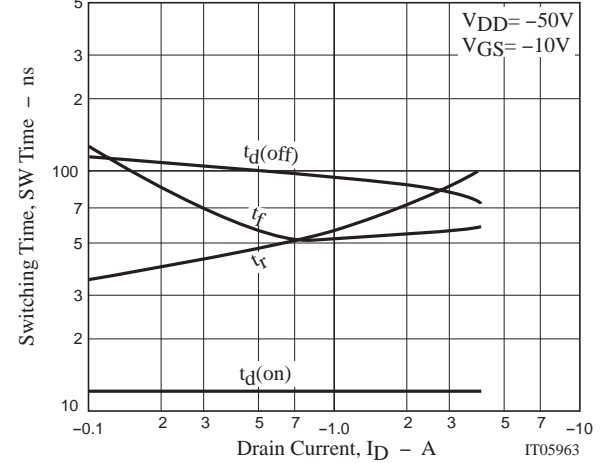
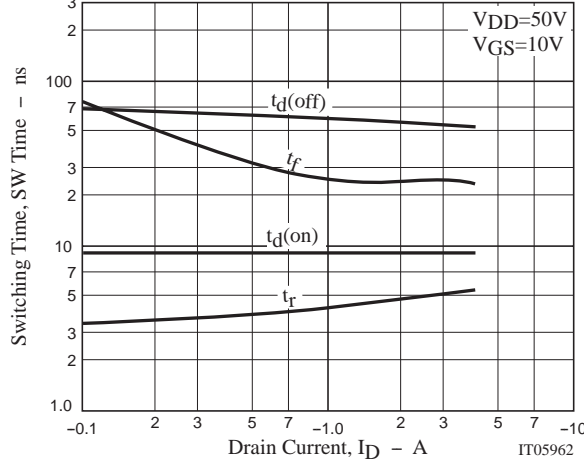
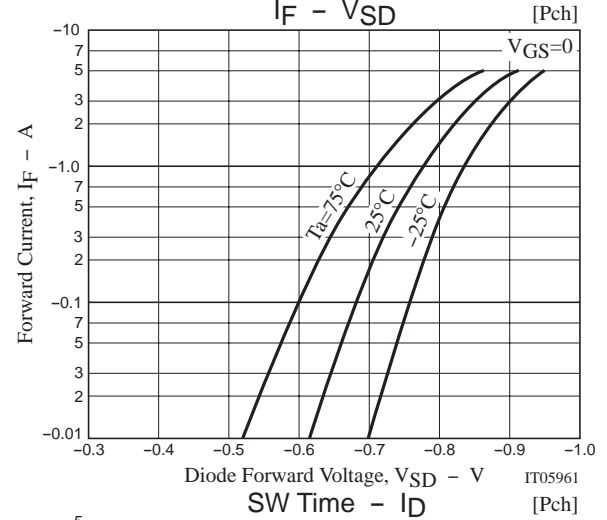
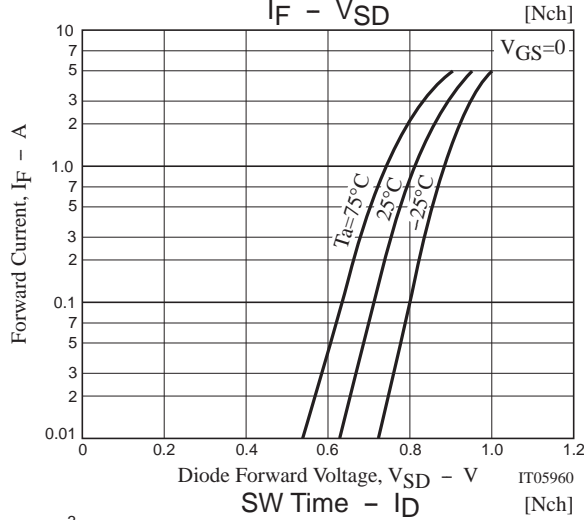
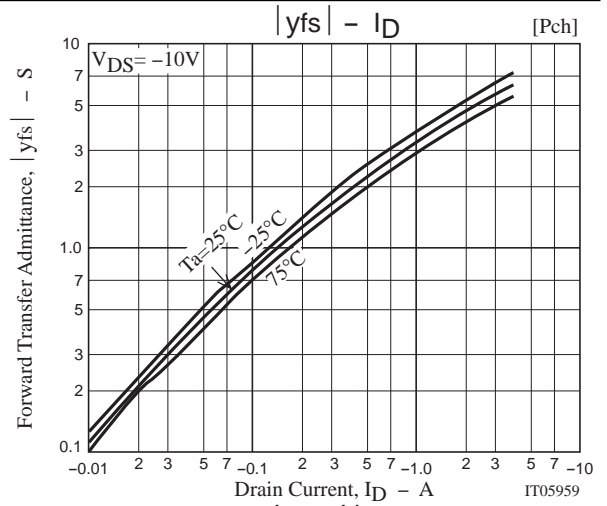
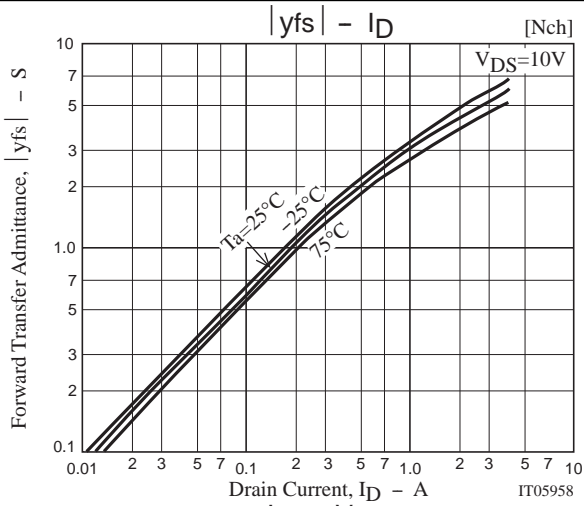
Electrical Connection



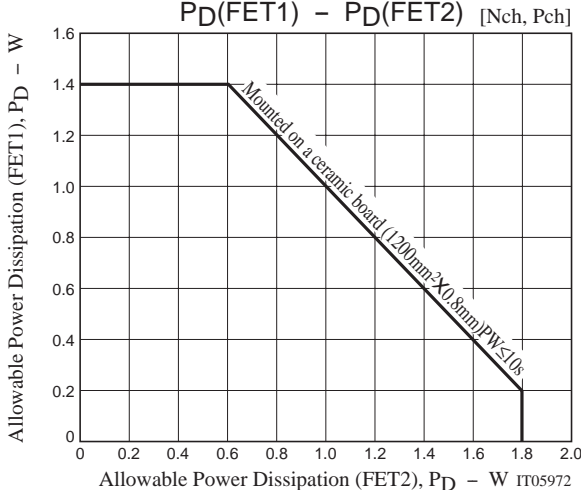
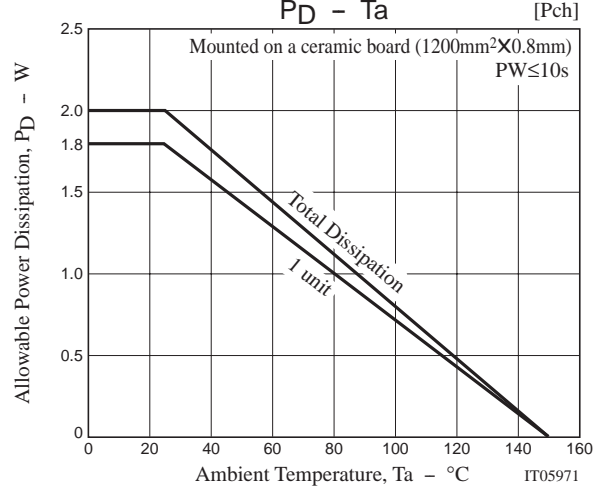
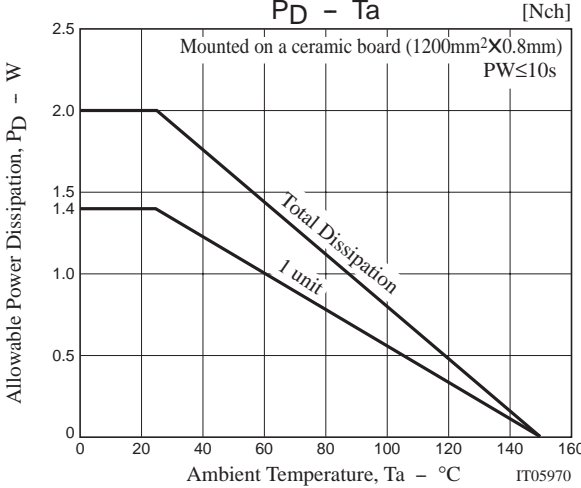
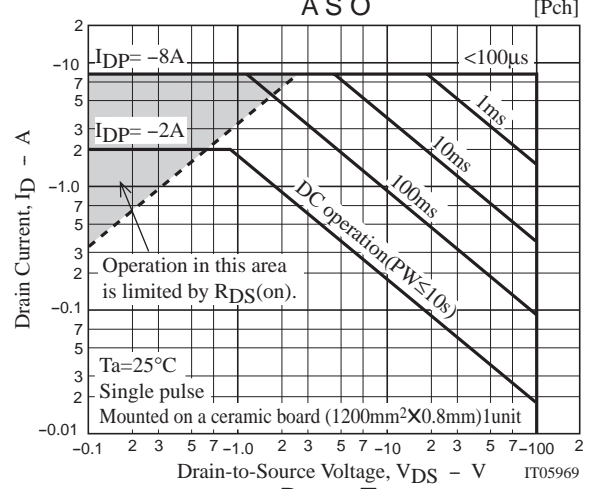
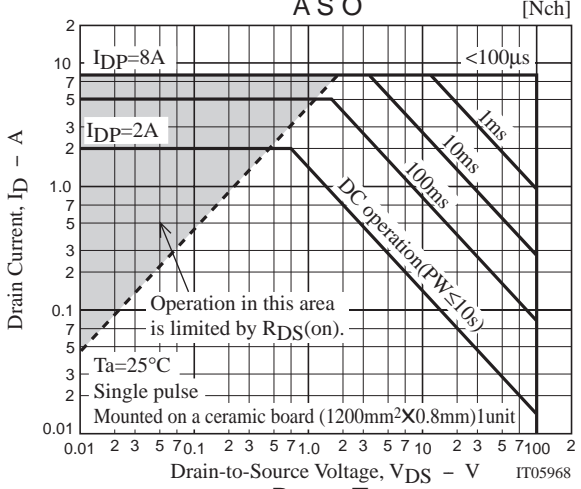
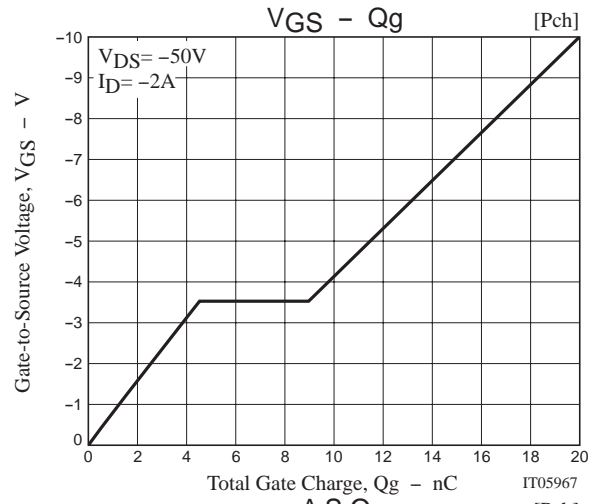
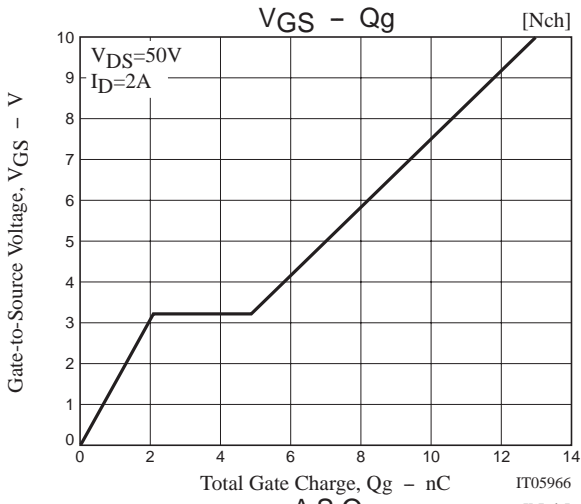
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