



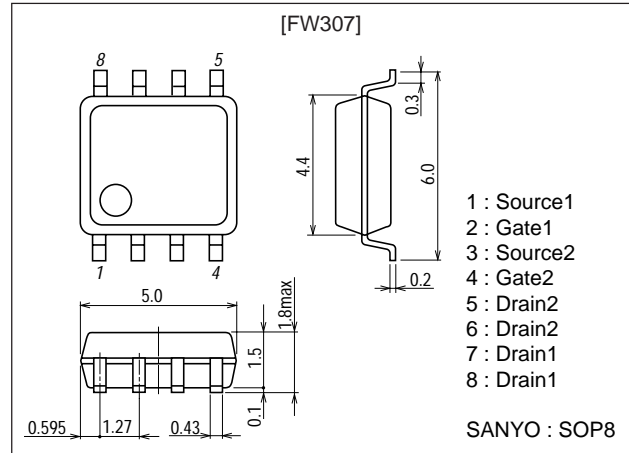
Ultrahigh-Speed Switching Applications

Features

- The FW307 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.

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}		250	-250	V
Gate-to-Source Voltage	V _{GSS}		±30	±30	V
Drain Current (DC)	I _D		1	-0.7	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	5	-3	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm²×0.8mm)1unit		1.7	W
Total Dissipation	P _T	Mounted on a ceramic board (900mm²×0.8mm)		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	250			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =250V, V _{GS} =0			100	μA
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =15V, V _{GS} =0, Ta=0 to 60°C			4	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±25V, V _{DS} =0			±10	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±15V, V _{DS} =0, Ta=0 to 60°C			±1.2	μA

Continued on next page.

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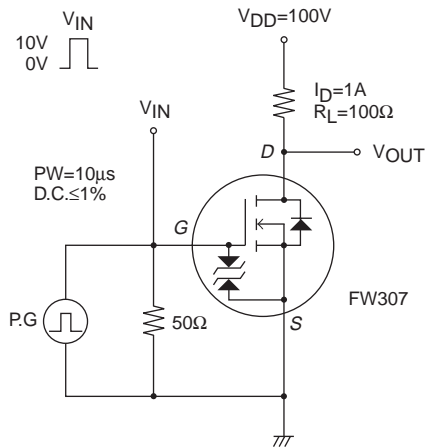
FW307

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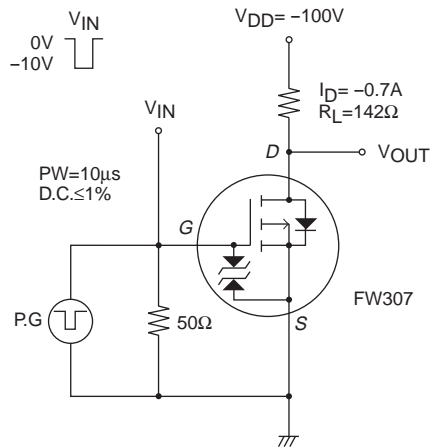
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.5		2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=1A$	1.4	2.1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=1A, V_{GS}=10V$		1.2	1.6	Ω
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		160		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		40		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		15		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		15		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		80		ns
Fall Time	t_f	See specified Test Circuit.		30		ns
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0$		1.0	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0$	-250			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-250V, V_{GS}=0$			-100	μA
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-15V, V_{GS}=0, T_a=0 \text{ to } 60^\circ C$			-4	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 25V, V_{DS}=0$			± 10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 15V, V_{DS}=0, T_a=0 \text{ to } 60^\circ C$			± 1.2	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.5		-2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-0.7A$	0.7	1.1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=-0.7A, V_{GS}=-10V$		3	4	Ω
Input Capacitance	C_{iss}	$V_{DS}=-20V, f=1MHz$		160		pF
Output Capacitance	C_{oss}	$V_{DS}=-20V, f=1MHz$		45		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20V, f=1MHz$		20		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		12		ns
Rise Time	t_r	See specified Test Circuit.		15		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		90		ns
Fall Time	t_f	See specified Test Circuit.		40		ns
Diode Forward Voltage	V_{SD}	$I_S=-1A, V_{GS}=0$		-1.0	-1.2	V

Switching Time Test Circuit

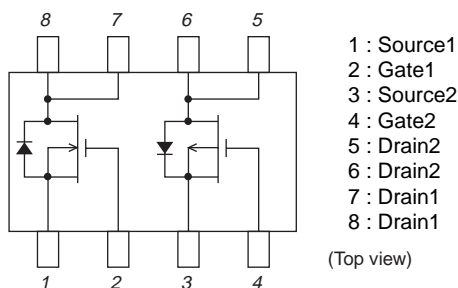
[N-channel]

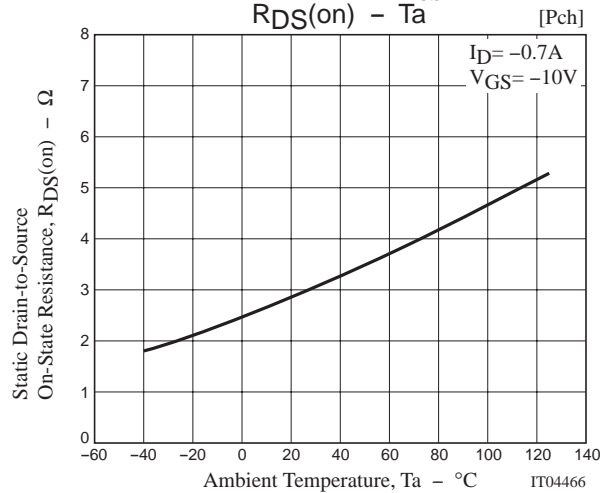
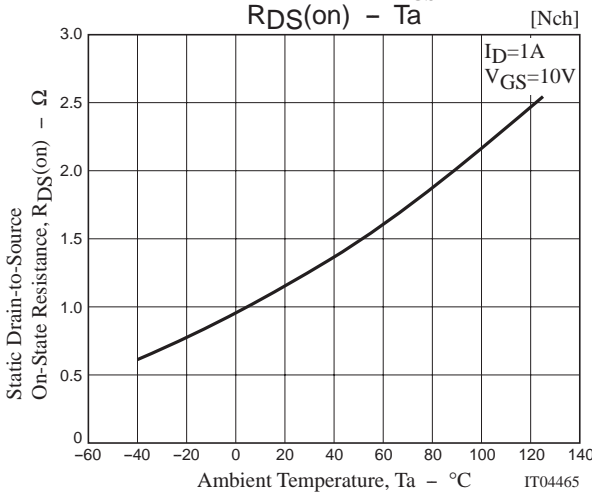
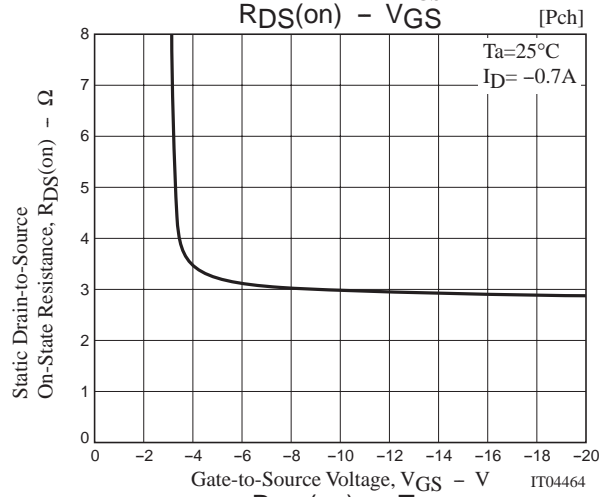
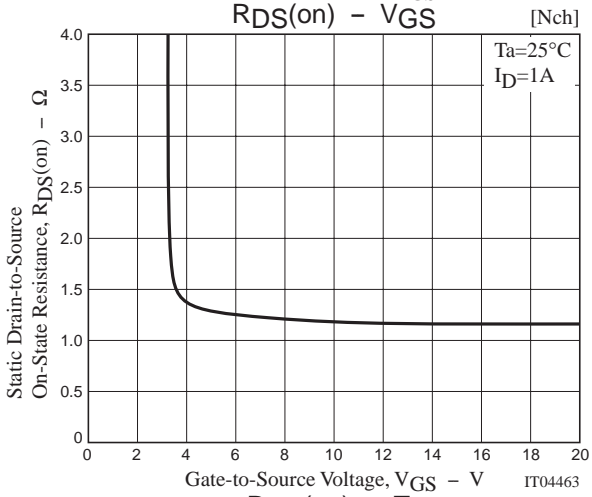
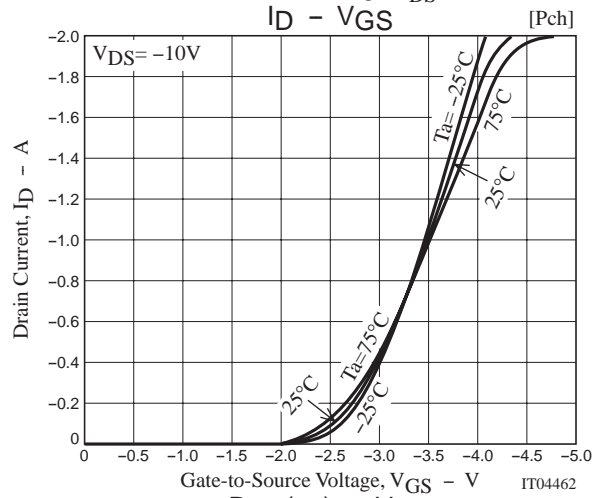
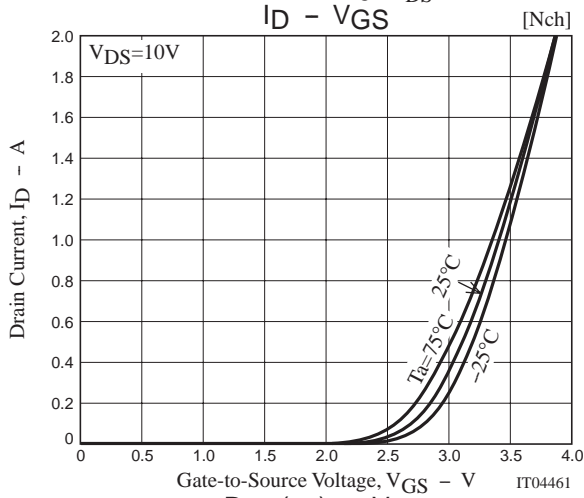
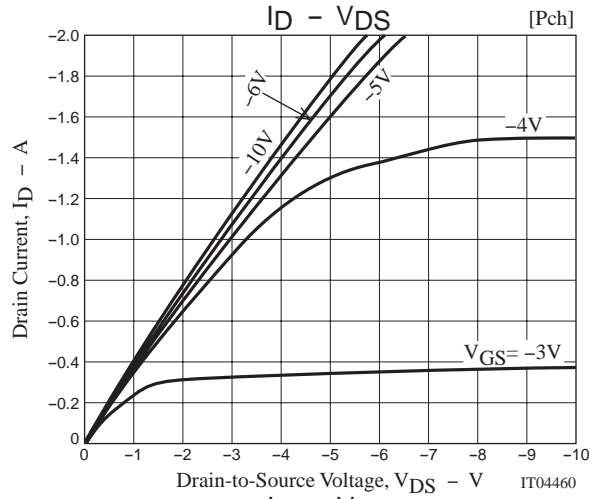
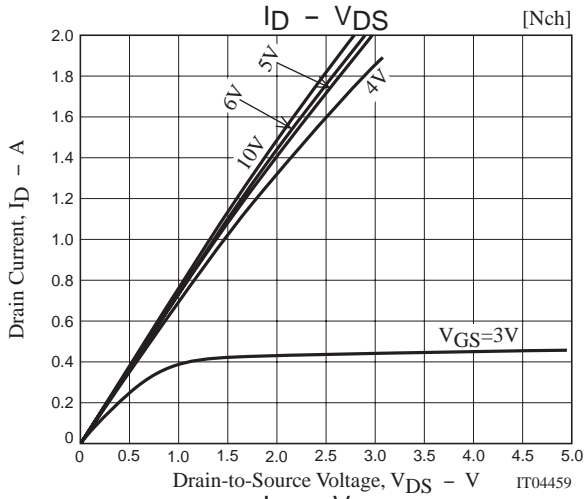


[P-channel]

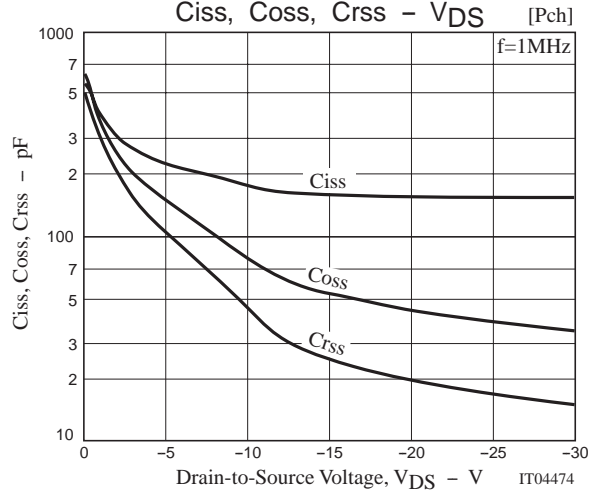
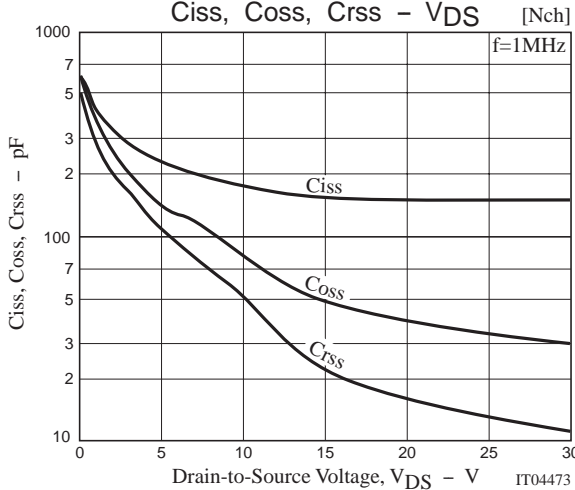
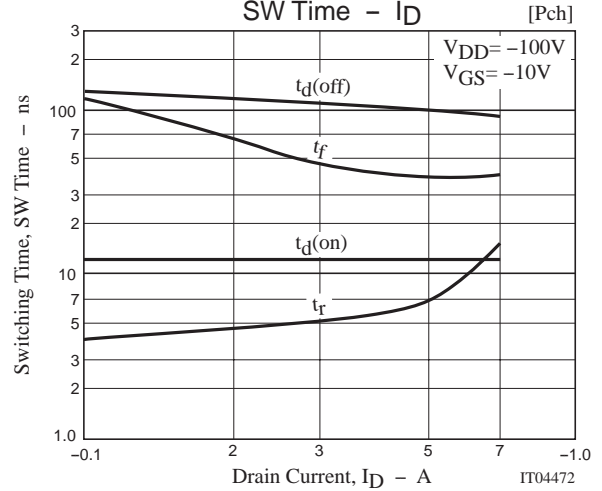
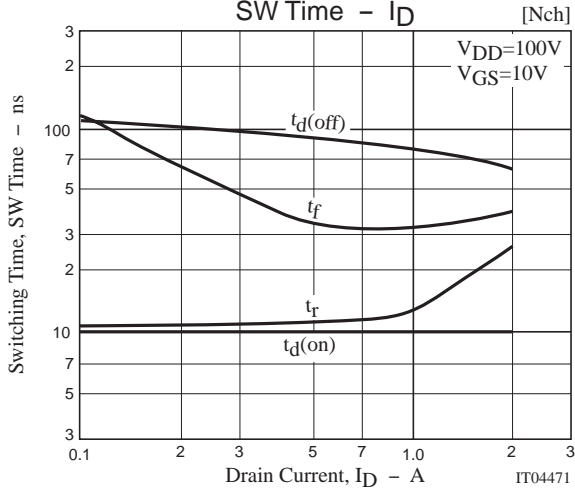
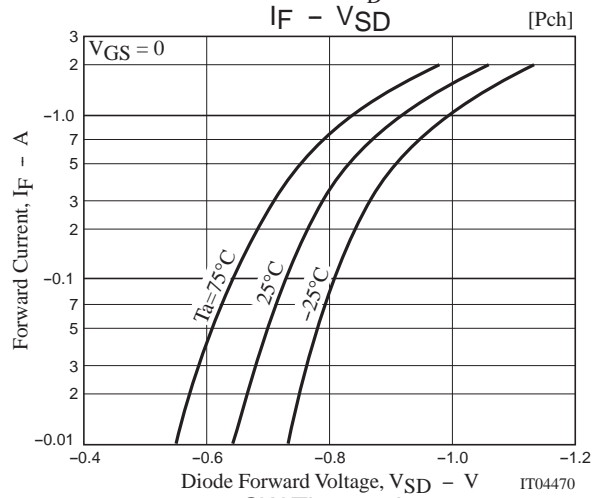
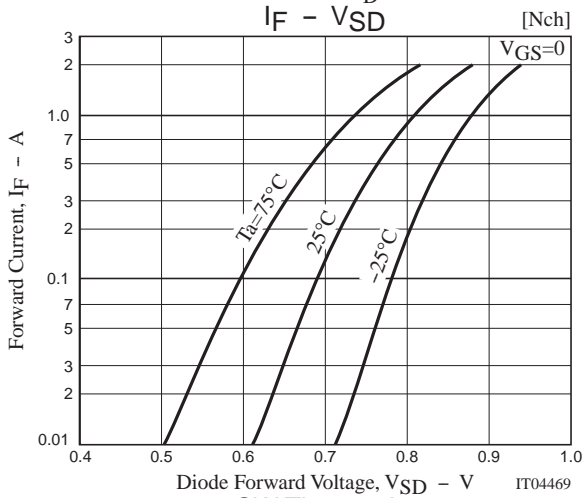
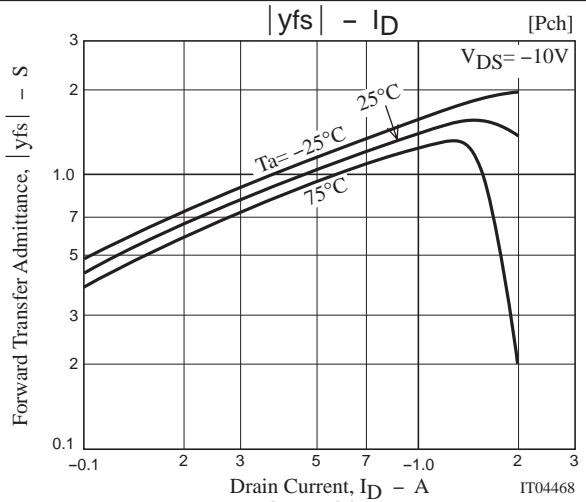
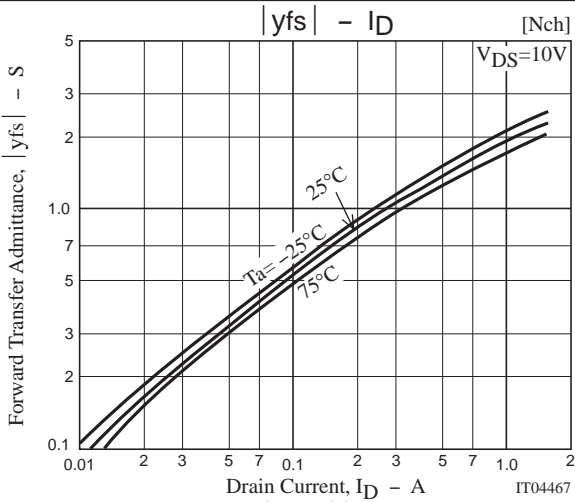


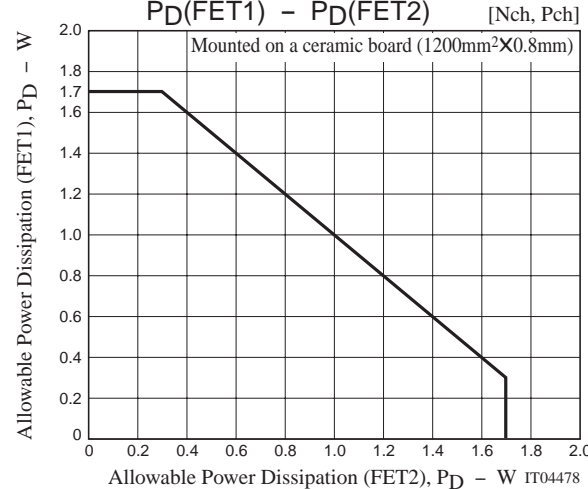
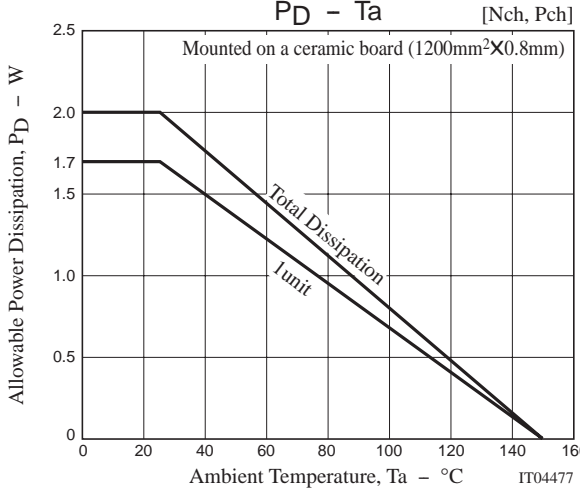
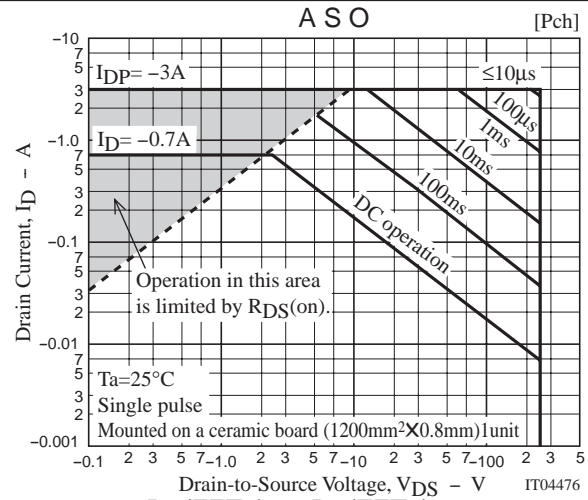
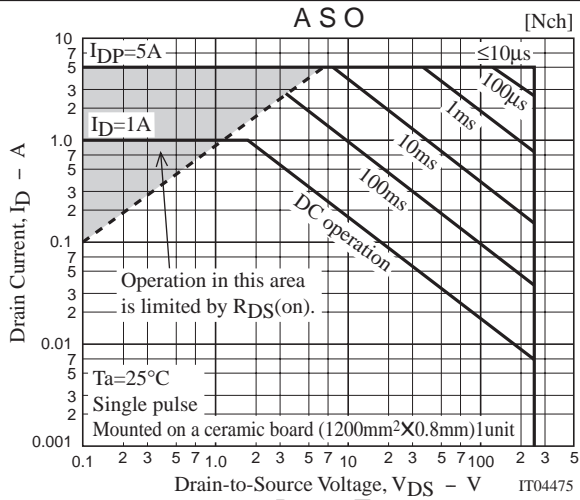
Electrical Connection





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