

■ Electrical Characteristics at $T_c=25^\circ\text{C}$ (unless otherwise specified)

• Static Ratings

Parameter	Symbol	Conditions	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	600	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.5	3.0	3.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=600V$ $V_{GS}=0V$ $T_{ch}=25^\circ\text{C}$	-	-	25	μA
		$V_{DS}=480V$ $V_{GS}=0V$ $T_{ch}=125^\circ\text{C}$	-	-	250	
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 30V$	-	10	100	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=7.8A$	-	0.169	0.190	Ω
Gate resistance	R_G	f=1MHz, open drain	-	10.9	-	Ω

• Dynamic Ratings

Parameter	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	$V_{DS}=25V$ $I_D=7.8A$	7.2	14.5	-	S
Input Capacitance	C_{iss}	$V_{DS}=400V$ $V_{GS}=0V$ f=250kHz	-	1130	-	μF
Output Capacitance	C_{oss}		-	30	-	
Reverse Transfer Capacitance	C_{rss}		-	4.4	-	
Effective output capacitance, energy related (Note *7)	$C_{o(er)}$	$V_{DS}=0\dots 400V$ $V_{GS}=0V$	-	69	-	μF
Effective output capacitance, time related (Note *8)	$C_{o(tr)}$	$V_{DS}=0\dots 400V$ $V_{GS}=0V$ $I_D=\text{constant}$	-	251	-	μF
Turn-On Time	$t_{d(on)}$	$V_{DD}=400V, V_{GS}=10V$ $I_D=7.8A,$ $R_G=18\Omega$ See Fig.3 and Fig.4	-	18	-	ns
	t_r		-	30	-	
Turn-Off Time	$t_{d(off)}$		-	143	-	
	t_f		-	22	-	
Total Gate Charge	Q_G	$V_{DD}=400V, V_{GS}=10V$ $I_D=15.5A$ See Fig.5	-	46	-	nC
Gate-Source Charge	Q_{GS}		-	12	-	
Gate-Drain Charge	Q_{GD}		-	14	-	
Drain-Source crossover Charge	Q_{SW}		-	7	-	

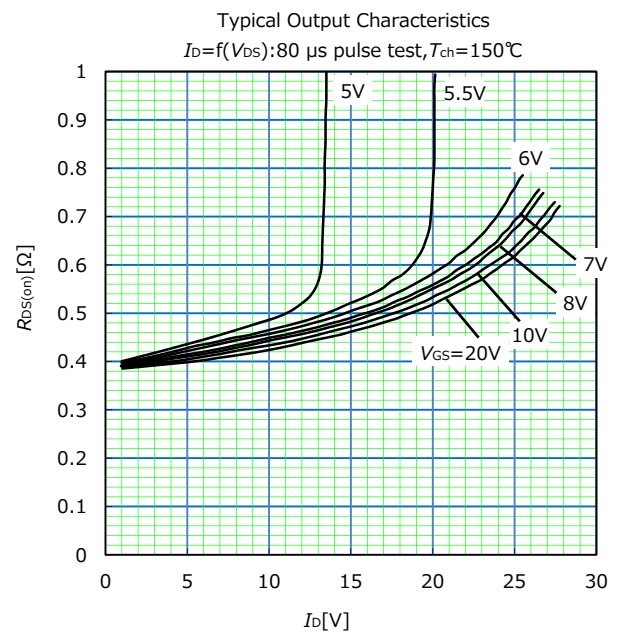
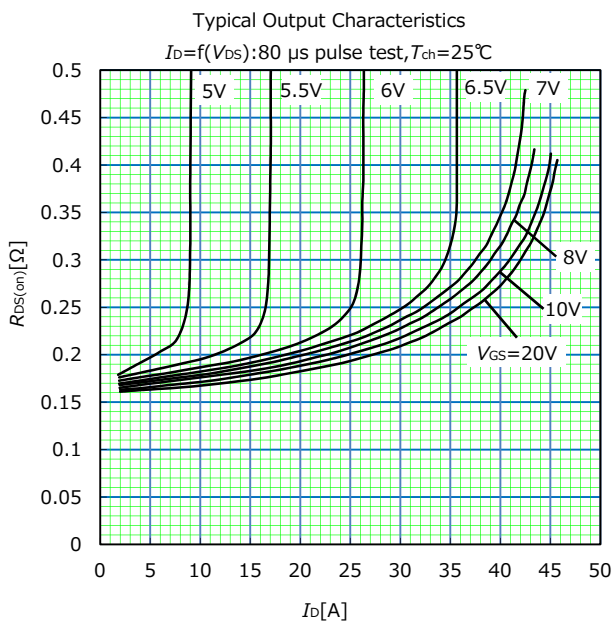
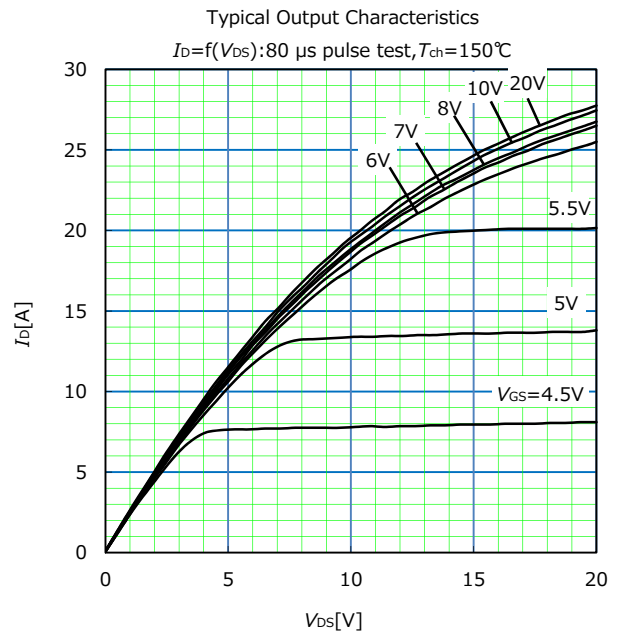
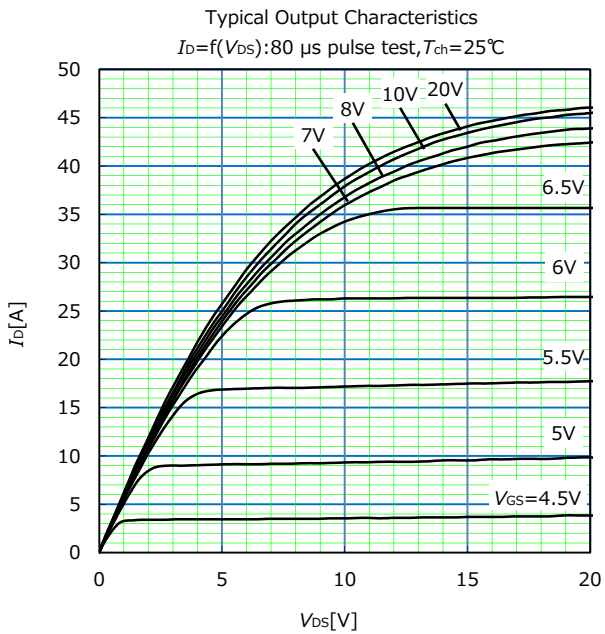
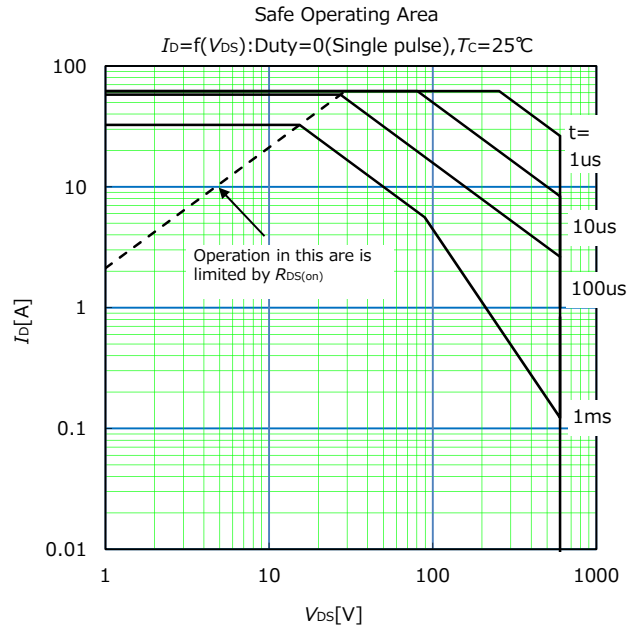
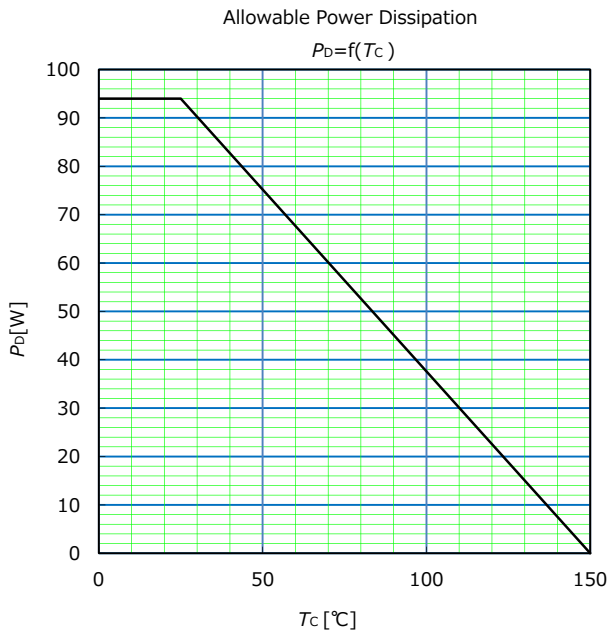
Note *7 : $C_{o(er)}$ is a fixed capacitance that gives the same stored energy as C_{oss} while V_{DS} is rising from 0 to 400V.
 Note *8 : $C_{o(tr)}$ is a fixed capacitance that gives the same charging times as C_{oss} while V_{DS} is rising from 0 to 400V.

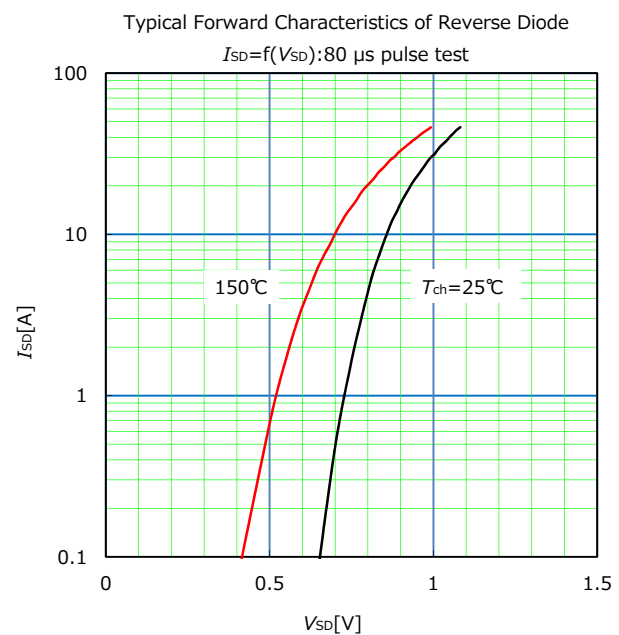
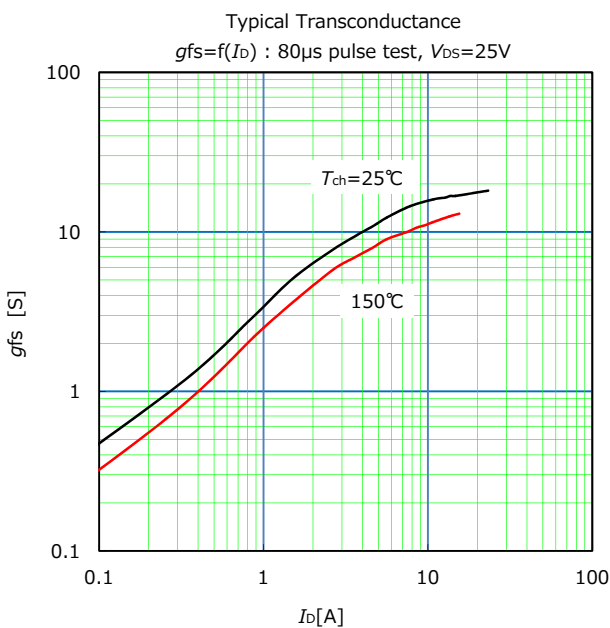
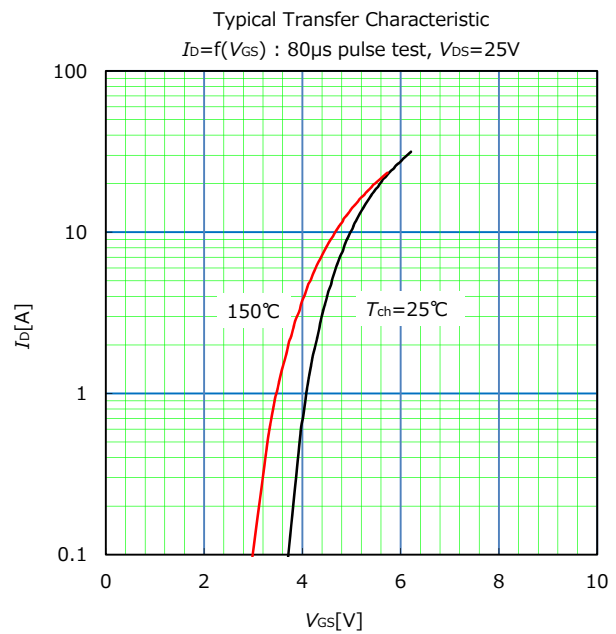
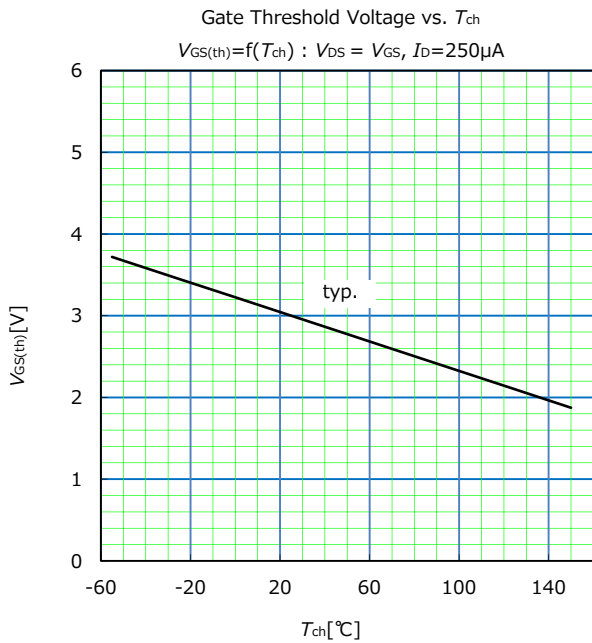
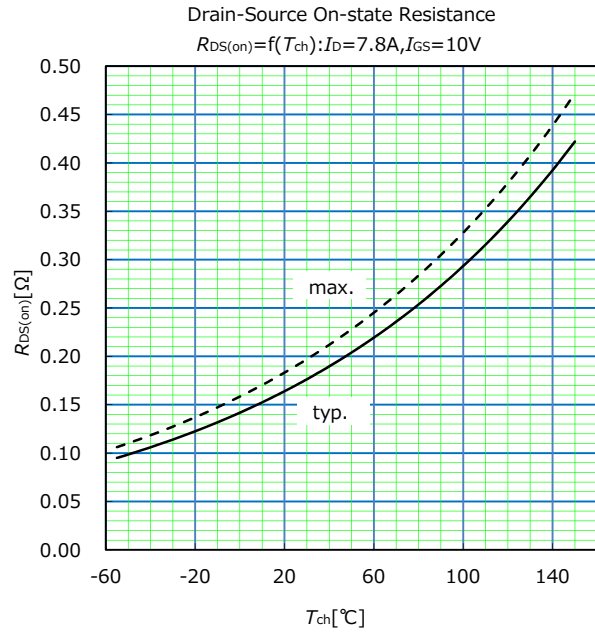
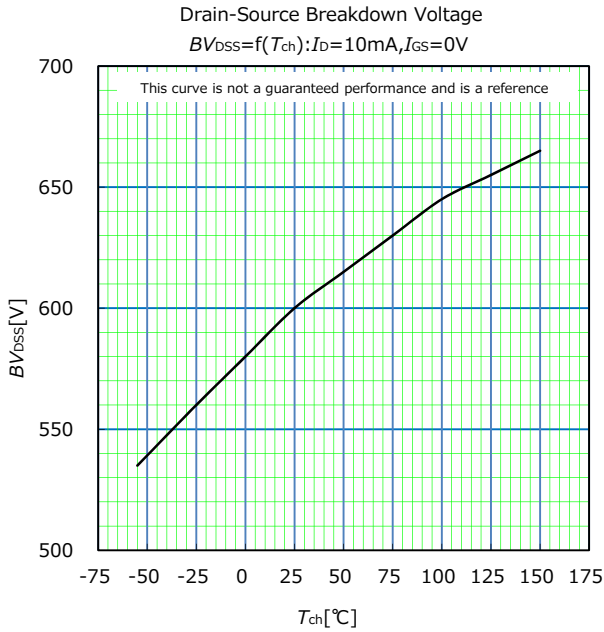
• Reverse Diode

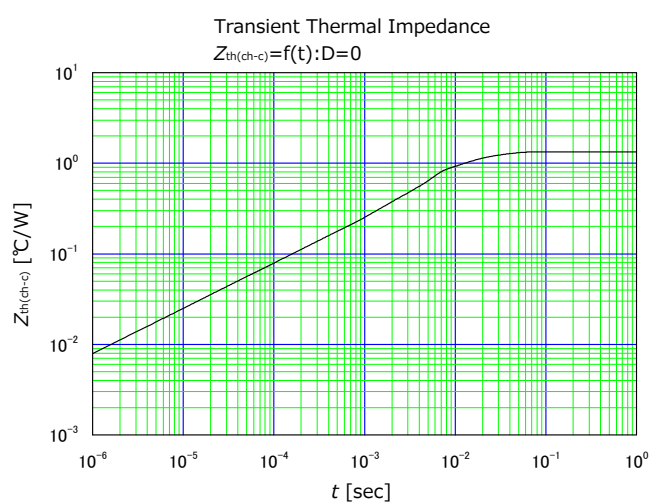
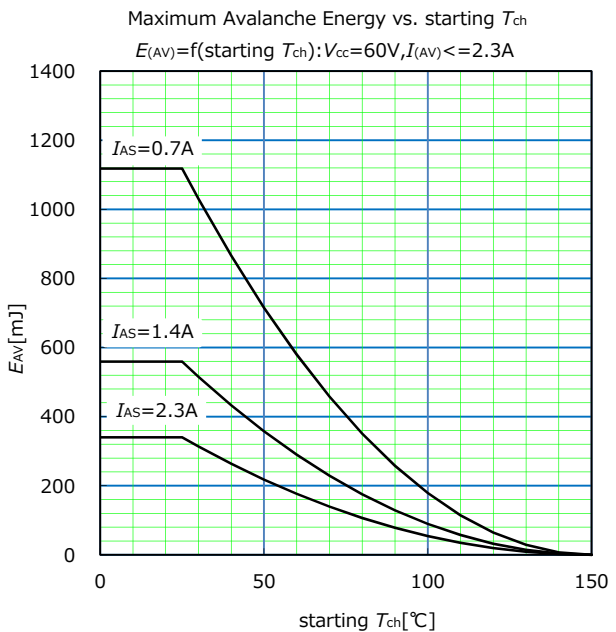
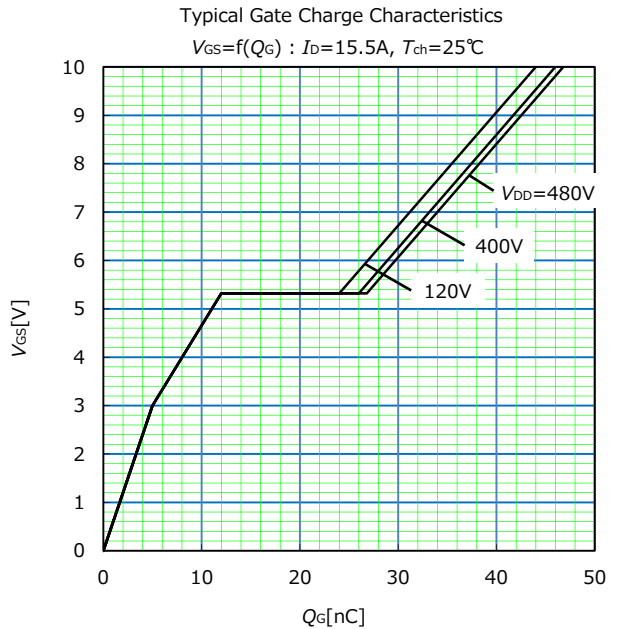
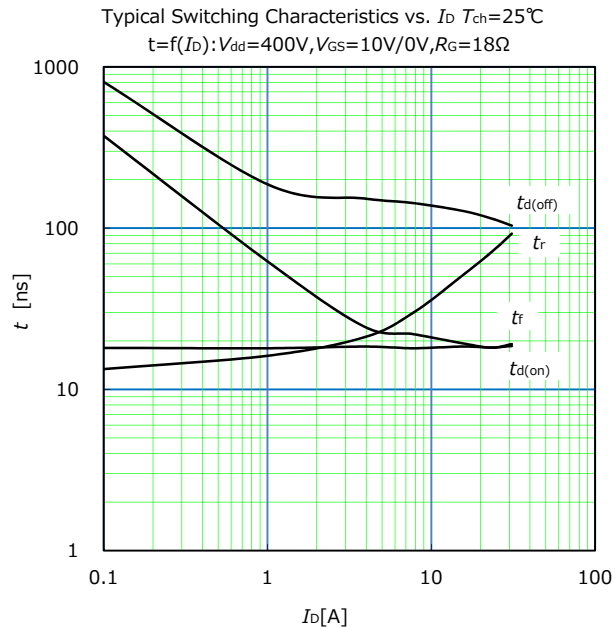
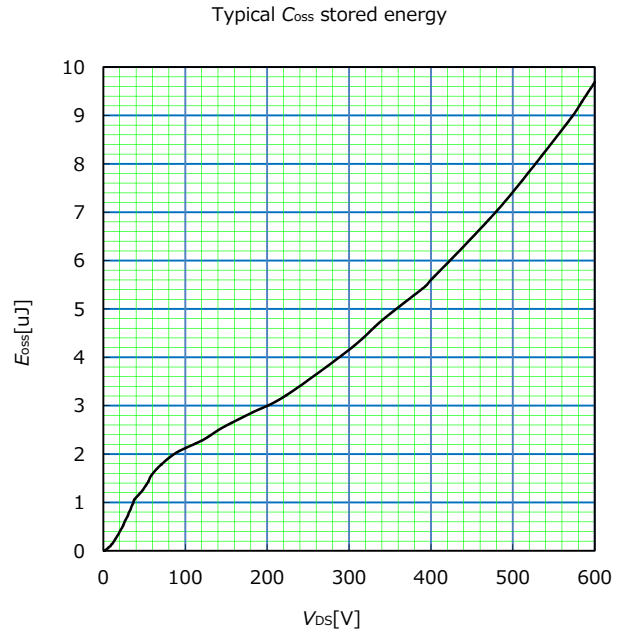
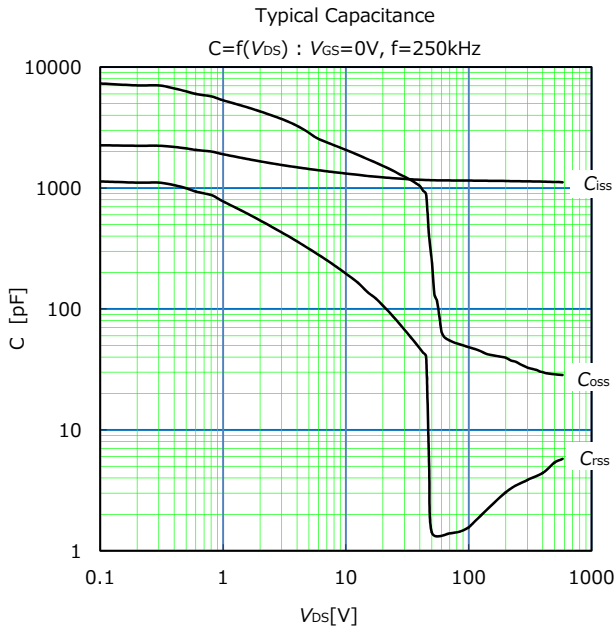
Parameter	Symbol	Conditions	min.	typ.	max.	Unit
Diode Forward On-Voltage	V_{SD}	$I_{SD}=15.5A, V_{GS}=0V$ $T_{ch}=25^\circ\text{C}$	-	0.90	1.35	V
Reverse Recovery Time	t_{rr}	$V_{DD}=400V, I_{SD}=15.5A$ -di/dt=100A/ μs $T_{ch}=25^\circ\text{C}$ See Fig.6 and Fig.7	-	328	-	ns
Reverse Recovery Charge	Q_{rr}		-	4.2	-	μC
Peak Reverse Recovery Current	I_{rp}		-	25	-	A

■ Thermal Resistance

Parameter	Symbol	min.	typ.	max.	Unit
Channel to Case	$R_{th(ch-c)}$	-	-	1.33	$^\circ\text{C/W}$
Channel to Ambient	$R_{th(ch-a)}$	-	-	50	$^\circ\text{C/W}$







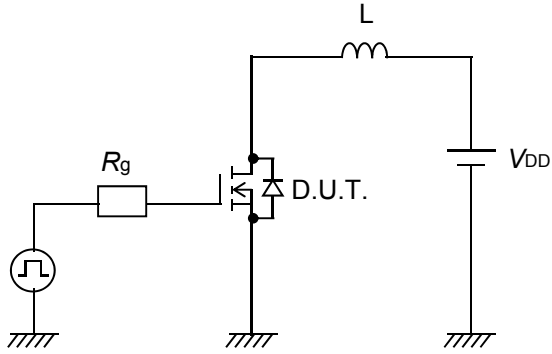


Fig.1 Avalanche Test circuit

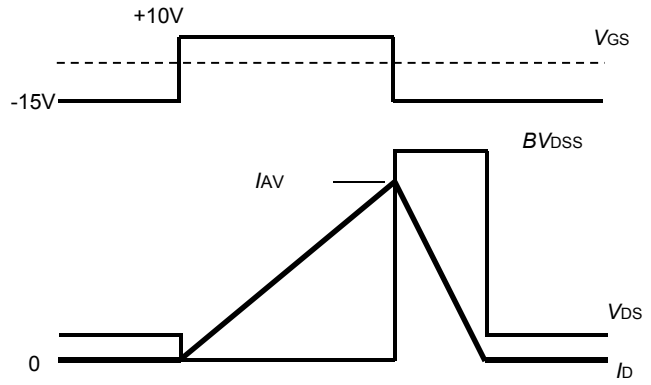


Fig.2 Operating waveforms of Avalanche Test

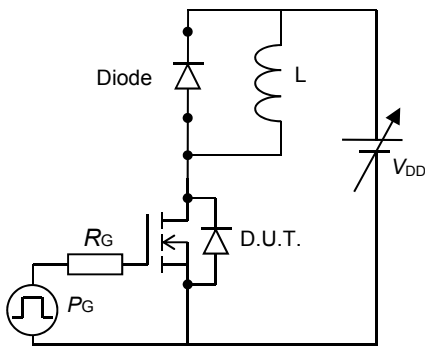


Fig.3 Switching Test circuit

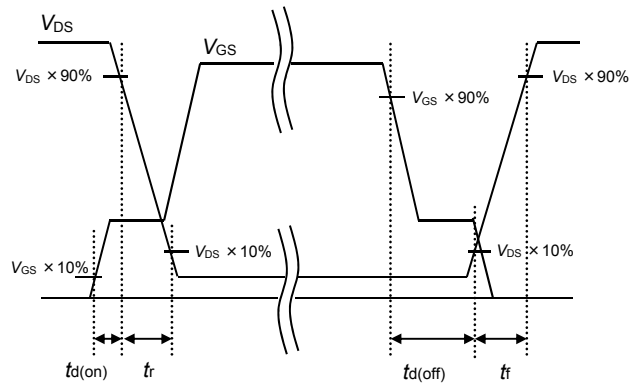


Fig.4 Operating waveform of Switching Test

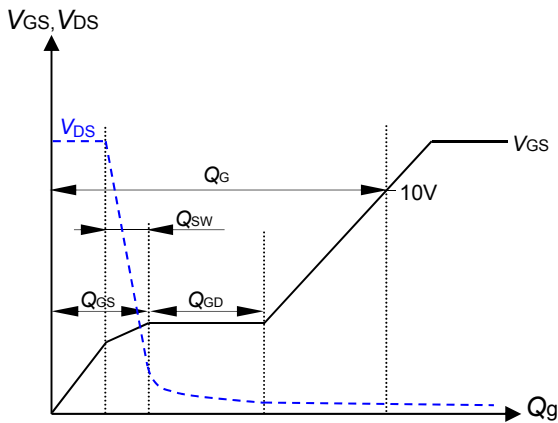


Fig.5 Operating waveform of Gate charge Test

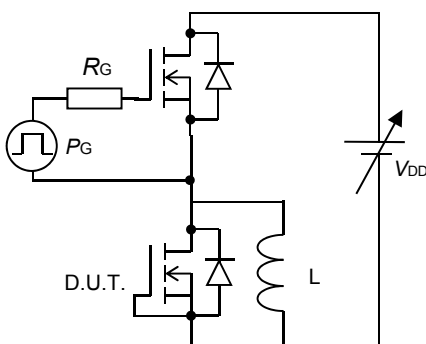


Fig.6 Reverse recovery Test circuit

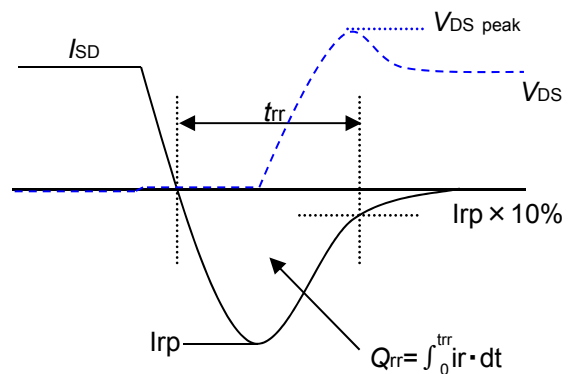
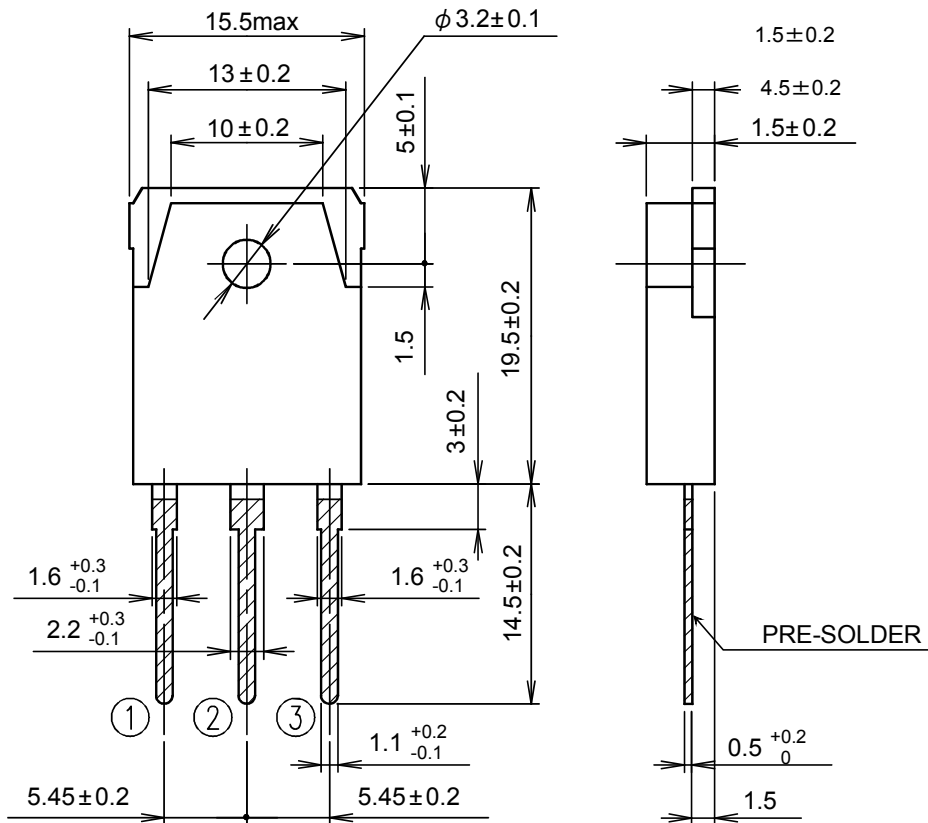
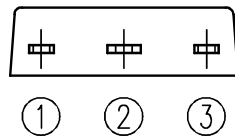


Fig.7 Operating waveform of Reverse recovery Test

■ Outview: TO-3P Package



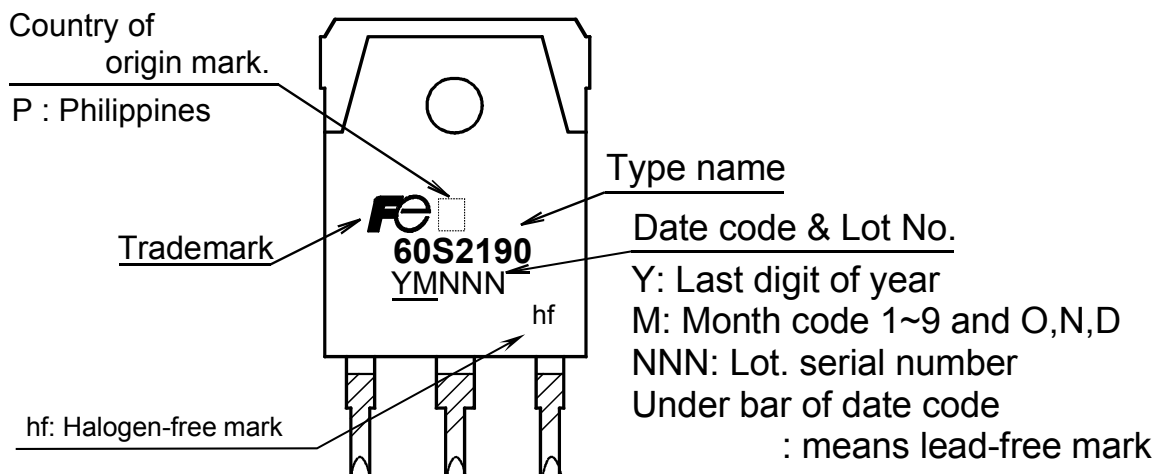
CONNECTION



- ① GATE
- ② DRAIN
- ③ SOURCE

JEDEC : TO-3P
DIMENSIONS ARE IN MILLIMETERS.

■ Marking



* The font (font type,size) and the trademark-size might be actually different.

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