

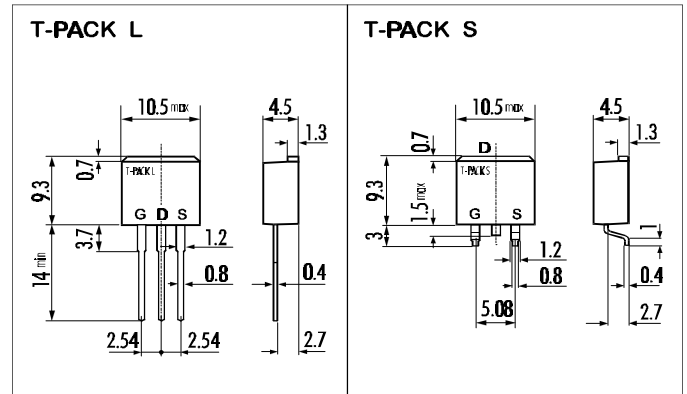
### > Features

- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Forward Transconductance

### > Applications

- Motor Control
- General Purpose Power Amplifier
- DC-DC converters

### > Outline Drawing

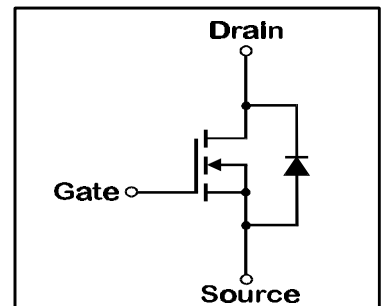


### > Maximum Ratings and Characteristics

- Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ ), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	$V_{DS}$	30	V
Drain-Gate-Voltage ( $R_{GS}=20\text{K}\Omega$ )	$V_{DGR}$	30	V
Continuous Drain Current	$I_D$	35	A
Pulsed Drain Current	$I_{D(puls)}$	140	A
Gate-Source-Voltage	$V_{GS}$	$\pm 20$	V
Max. Power Dissipation	$P_D$	60	W
Operating and Storage Temperature Range	$T_{ch}$	150	$^\circ\text{C}$
	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

### > Equivalent Circuit



- Electrical Characteristics ( $T_C=25^\circ\text{C}$ ), unless otherwise specified

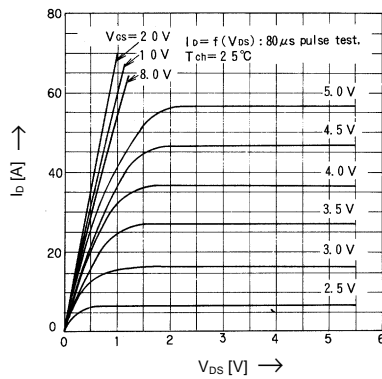
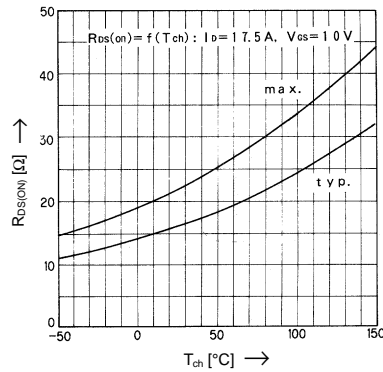
Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ $V_{GS}=0\text{V}$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=1\text{mA}$ $V_{DS}=V_{GS}$	1,0	1,5	2,5	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30\text{V}$ $T_{ch}=25^\circ\text{C}$		10	500	$\mu\text{A}$
		$V_{GS}=0\text{V}$ $T_{ch}=125^\circ\text{C}$		0,2	1,0	mA
Gate Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=17,5\text{A}$ $V_{GS}=4\text{V}$		0,025	0,037	$\Omega$
		$I_D=17,5\text{A}$ $V_{GS}=10\text{V}$		0,016	0,022	$\Omega$
Forward Transconductance	$g_{fs}$	$I_D=17,5\text{A}$ $V_{DS}=12\text{V}$	8	17		S
Input Capacitance	$C_{iss}$	$V_{DS}=25\text{V}$		1750	2630	pF
Output Capacitance	$C_{oss}$	$V_{GS}=0\text{V}$		800	1200	pF
Reverse Transfer Capacitance	$C_{rss}$	$f=1\text{MHz}$		400	600	pF
Turn-On-Time $t_{on}$ ( $t_{on}=t_{d(on)}+t_r$ )	$t_{d(on)}$	$V_{CC}=12\text{V}$		25	38	ns
	$t_r$	$I_D=35\text{A}$		100	150	ns
Turn-Off-Time $t_{off}$ ( $t_{off}=t_{d(off)}+t_f$ )	$t_{d(off)}$	$V_{GS}=10\text{V}$		300	450	ns
	$t_f$	$R_{GS}=25\Omega$		180	270	ns
Continuous Reverse Drain Current	$I_{DR}$				35	A
Pulsed Reverse Drain Current	$I_{DRM}$				140	A
Diode Forward On-Voltage	$V_{SD}$	$I_F=2 \times I_{DR}$ $V_{GS}=0\text{V}$ $T_{ch}=25^\circ\text{C}$		1,35	2,0	V
Reverse Recovery Time	$t_{rr}$	$I_F=I_{DR}$ $V_{GS}=0\text{V}$		100		ns
Reverse Recovery Charge	$Q_{rr}$	$-di_F/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^\circ\text{C}$		0,5		$\mu\text{C}$

- Thermal Characteristics

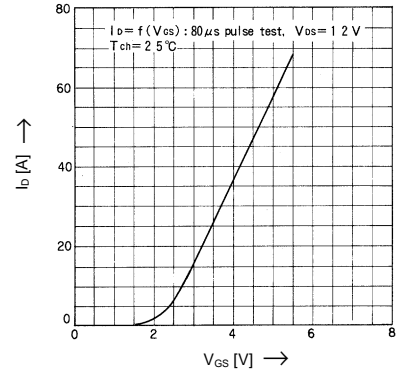
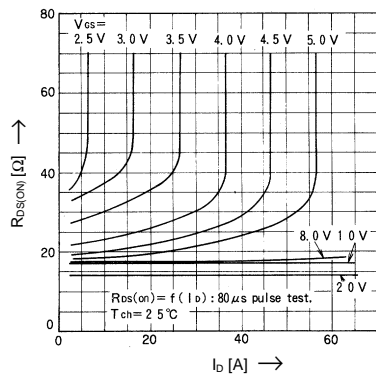
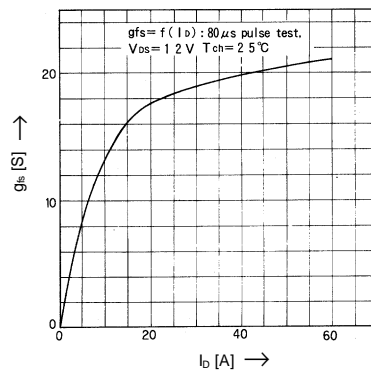
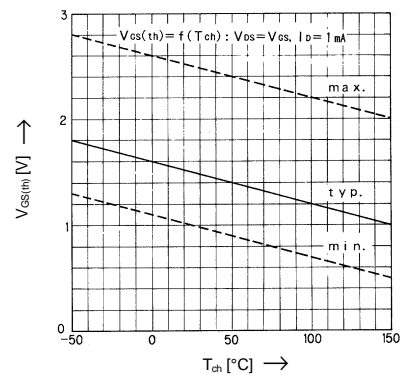
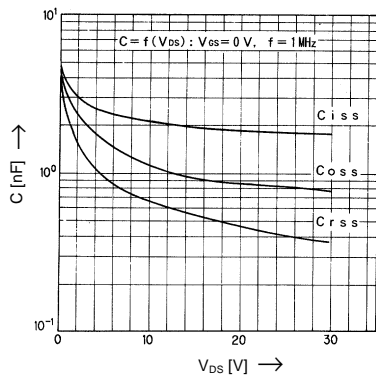
Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			125	$^\circ\text{C}/\text{W}$
	$R_{th(ch-c)}$	channel to case			2,08	$^\circ\text{C}/\text{W}$

## &gt; Characteristics

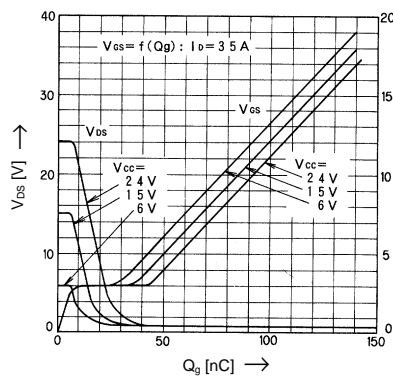
Typical Output Characteristics

Drain-Source-On-State Resistance vs.  $T_{ch}$ 

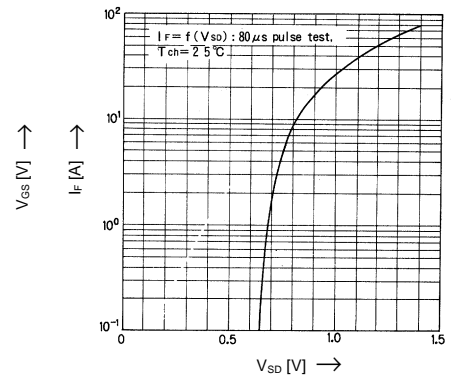
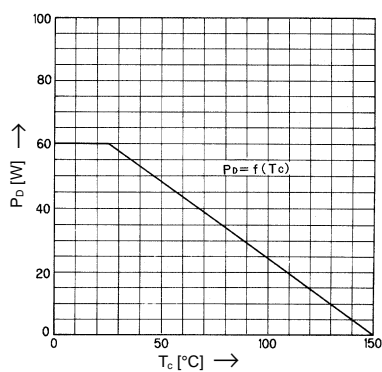
Typical Transfer Characteristics

Typical Drain-Source-On-State-Resistance vs.  $I_D$ Typical Forward Transconductance vs.  $I_D$ Gate Threshold Voltage vs.  $T_{ch}$ Typical Capacitance vs.  $V_{DS}$ 

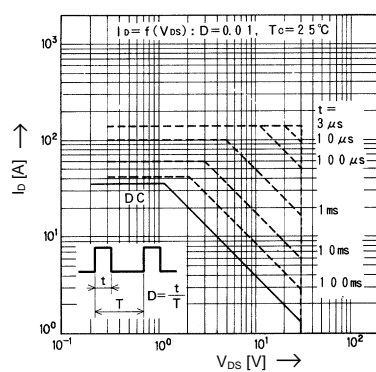
Typical Input Charge



Forward Characteristics of Reverse Diode

Allowable Power Dissipation vs.  $T_c$ 

Safe operation area



↑

Z<sub>th(j-c)</sub> [K/W]

Transient Thermal impedance

