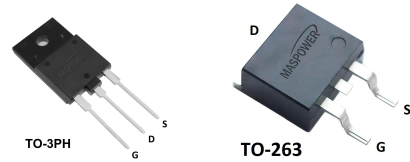


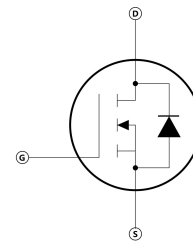
Features

- 100% avalanche tested
- Avalanche ruggedness
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



Applications

- UPS
- Switching applications



Electrical ratings

Absolute maximum ratings			
Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DS}	1700	V
Transient Gate- source voltage	V_{GSM}	± 30	
Continuous Gate- source voltage(DC)	V_{GSS}	± 20	
Single pulse avalanche energy (starting $T_J = 25^\circ\text{C}$, $L=10\text{mL}$, $V_{DD} = 50\text{ V}$)	E_{AS}	125	mJ
Drain current (continuous) at $T_C = 25^\circ\text{C}$	I_D	5	A
Drain current (continuous) at $T_C = 100^\circ\text{C}$		3	
Drain current (pulsed)	I_{DM}	12	
Maximum Power Dissipation(TO-3PH)	P_D	56	W
Maximum Power Dissipation(TO-263)	P_D	156	W
Operating junction temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_L	300	$^\circ\text{C}$
Isolation Voltage Between Case and Terminal	V_{ISO}	3.0	KV
Mounting Torque	M_d	1.13	Nm
Weight	G	6	g

Electrical Characteristics ($T_{vj} = 25^\circ\text{C}$ unless otherwise specified)

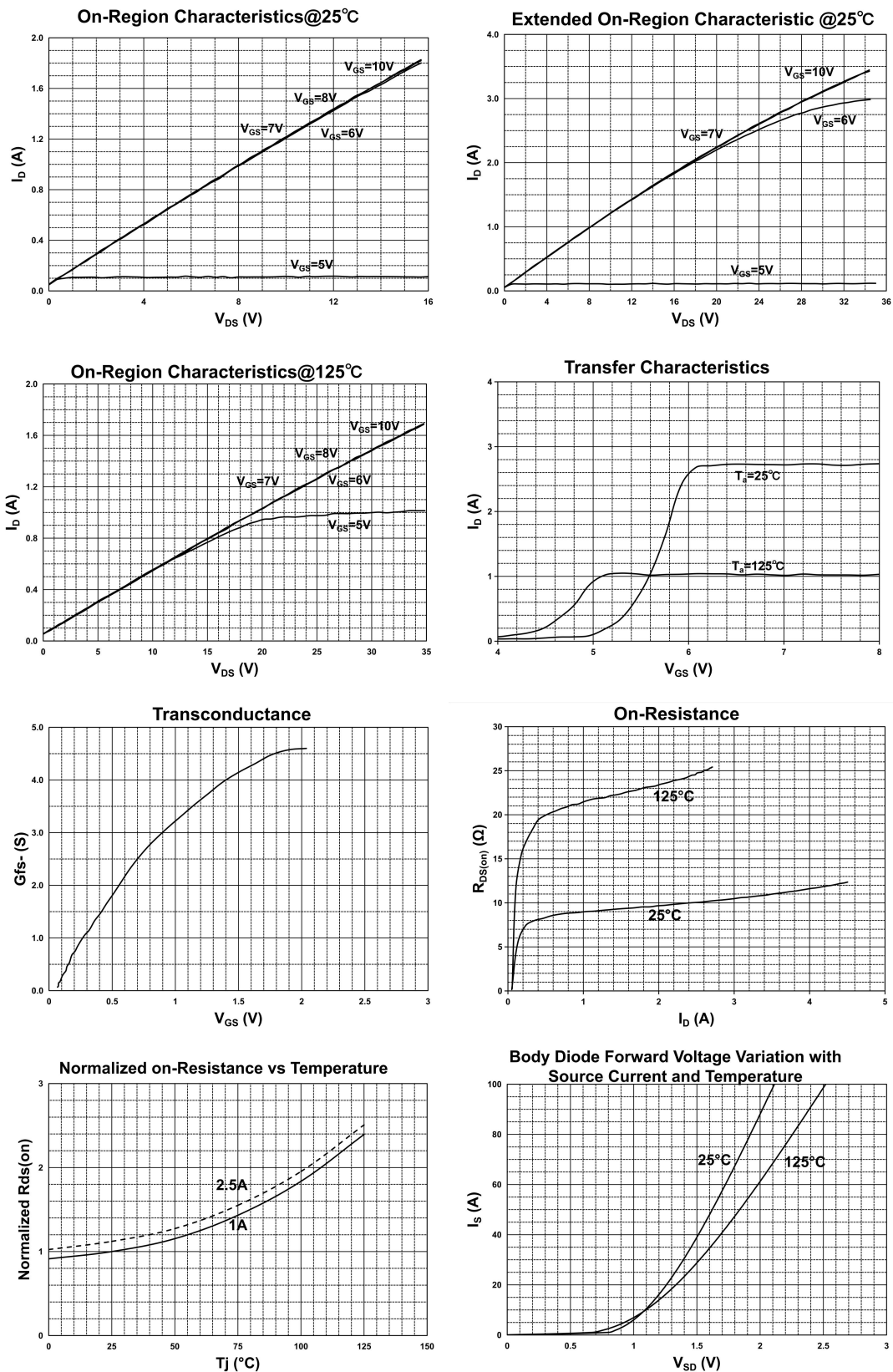
On /off states						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 1\text{ mA}$, $V_{GS} = 0$	1700	-	-	V

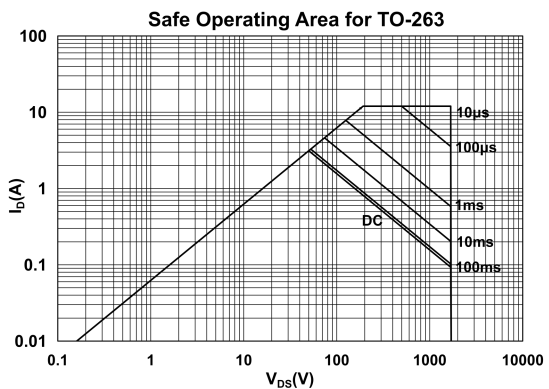
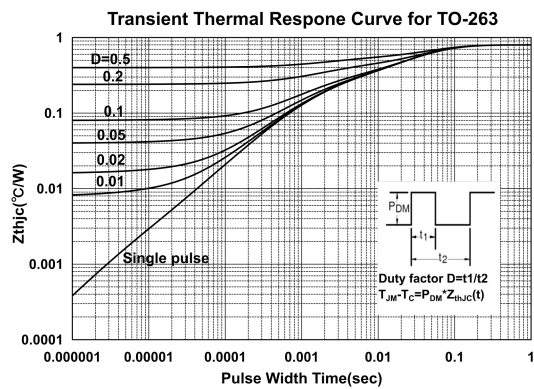
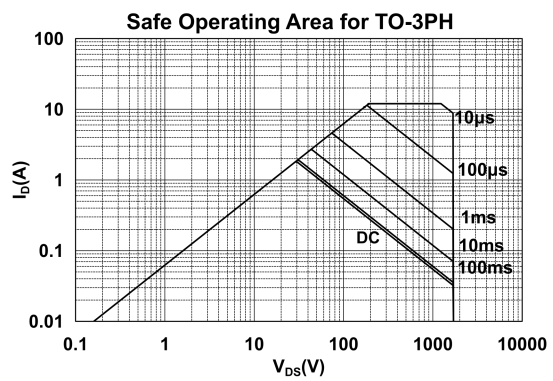
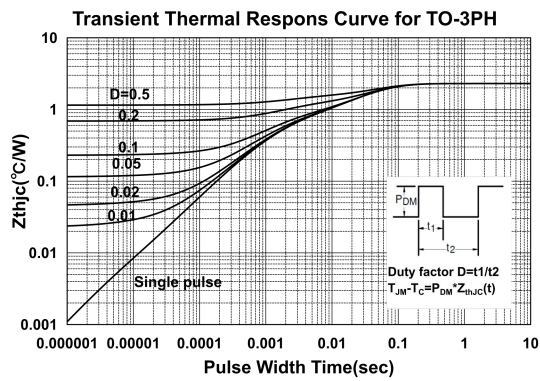
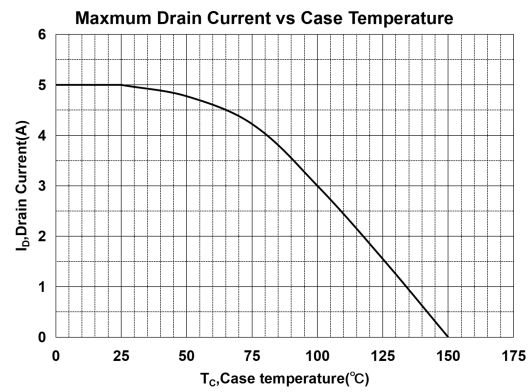
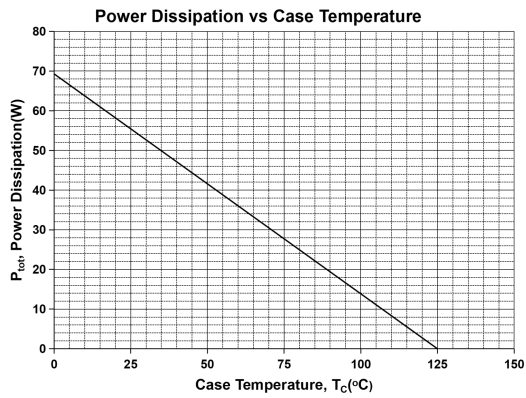
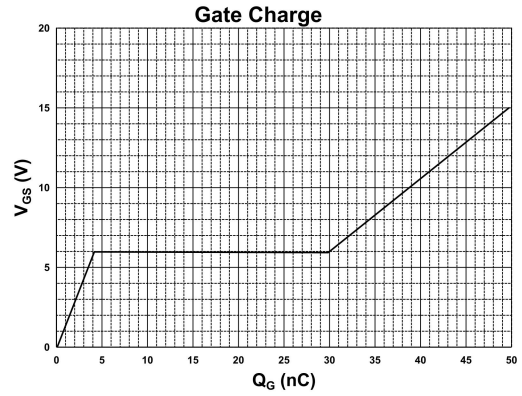
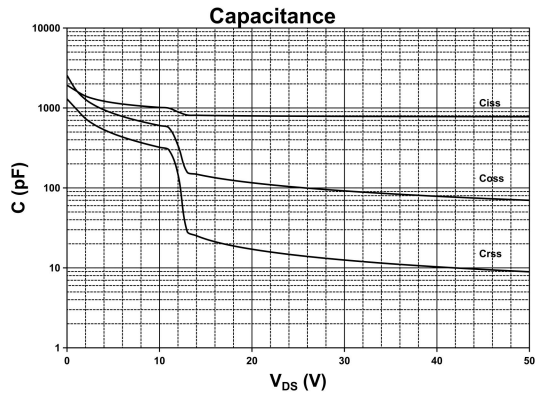
Zero gate voltage drain current ($V_{GS} = 0$)	I_{DSS}	$V_{DS} = \text{Max rating}$ $T_C=25^{\circ}\text{C}$	-	-	10	μA
Gate-body leakage current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	3	4	5	V
Static drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 1\text{A}$	-	8.0	9.0	Ω
Transconductance	G_{fs}	$V_{DS} = 60\text{V}, I_D = 5\text{A}$	-	6.2	-	S
Dynamic						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Input capacitance	C_{iss}	$V_{DS}=100\text{V}, f=1\text{MHz},$ $V_{GS}=0\text{V}$	-	790	-	pF
Output capacitance	C_{oss}		-	101	-	
Reverse transfer capacitance	C_{rss}		-	14	-	
Total gate charge	Q_g	$V_{DD}=1360\text{V}, I_D=2.5\text{A}$ $V_{GS}=10\text{V}$	-	49.8	-	nC
Gate-source charge	Q_{gs}		-	4	-	
Gate-drain charge	Q_{gd}		-	25.8	-	
Switching times						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 1360\text{V}, I_D = 2.5\text{A},$ $R_G = 25\text{ }\Omega, V_{GS} = 10\text{ V}$	-	49.3	-	ns
Rise time	t_r		-	24.3	-	
Turn-off-delay time	$t_{d(off)}$		-	79.1	-	
Fall time	t_f		-	24.3	-	
Source drain diode						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source-drain current	I_{SD}		-	5	-	A
Source-drain current (pulsed)	I_{SDM}		-	11	-	
Forward on voltage	V_{SD}	$I_{SD}= 5\text{ A}, V_{GS}= 0$	-	0.9	-	V
Reverse recovery time	t_{rr}	$I_{SD}= 5\text{A}, di/dt= 100\text{A}/\mu\text{s}$	-	2.38	-	μS
Reverse recovery charge	Q_{rr}	$V_{DD}= 60\text{ V}$	-	7.6	-	μC

Thermal data

Parameter	Symbol	Value		Unit
		TO-3PH	TO-263	
Thermal resistance junction-case max	$R_{thj-case}$	2.3	0.8	$^\circ\text{C/W}$
Thermal resistance junction-ambient max	$R_{thj-amb}$	60.5	52	

Electrical characteristics





Technical drawing of the TO-3PH package showing front, side, and detail views with dimensions in mm.

Front View Dimensions:

- Overall width: 15.70 (nominal), 15.30 (actual)
- Overall height: 24.70 (nominal), 24.30 (actual)
- Mounting hole diameter: 3.80 (nominal), 3.40 (actual)
- Mounting hole spacing: 10.20 (nominal), 9.80 (actual)
- Lead height from base: 19.50 (nominal), 19.10 (actual)
- Lead thickness: 2.15 (nominal), 1.90 (actual)
- Lead width at base: 4.20 (nominal), 3.80 (actual)
- Lead length: 5.55 (nominal), 5.35 (actual)

Side View Dimensions:

- Overall height: 25.30 (nominal), 24.70 (actual)
- Lead height from base: 5.20 (nominal), 4.80 (actual)
- Lead thickness: 2.20 (nominal), 1.90 (actual)
- Lead width at base: 3.20 (nominal), 2.80 (actual)
- Lead length: 3.70 (nominal), 3.30 (actual)

Detail View Dimensions:

- Overall width: 5.70 (nominal), 5.30 (actual)
- Lead thickness: 1.10 (nominal), 0.80 (actual)
- Lead width at base: 2.20 (nominal), 1.80 (actual)
- Lead length: 3.50 (nominal), 3.10 (actual)

Notes:

- NOTE 3: Dimension for lead length (5.55/5.35 mm).

TO-3PH Unit:mm

