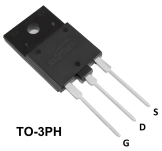
Features

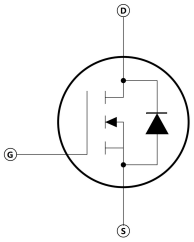
- 100% avalanche tested
- Avalanche ruggedness
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance





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 °C, L=10mL, V_{DD} = 50 V)	E_{AS}	125	mJ
Drain current (continuous) at T_C = 25 °C	I_D	5	A
Drain current (continuous) at T_C = 100 °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	℃
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_L	300	℃
Isolation Voltage Between Case and Terminal	V_{ISO}	3.0	KV
Mounting Torque	M_d	1.13	Nm
Weight	G	6	g

Electrical Characteristics (Tvj = 25°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 mA, V_{GS} = 0	1700	-	-	V

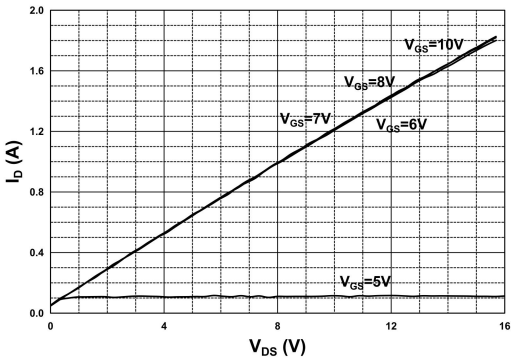
Zero gate voltage drain current (V_{GS} = 0)	I_{DSS}	V_{DS} = Max rating T_C=25°C	-	-	10	μA
Gate-body leakage current (V_{DS} = 0)	I_{GSS}	V_{GS} = ± 20 V	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	3	4	5	V
Static drain-source on resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 1A	-	8.0	9.0	Ω
Transconductance	G_{fs}	V_{DS} = 60V, I_D = 5A	-	6.2	-	S
Dynamic						
Parameter	**Symbol**	**Test conditions**	**Min**	**Typ**	**Max**	**Unit**
Input capacitance	C_{iss}	V_{DS}=100V,f=1MHz, V_{GS}=0V	-	790	-	pF
Output capacitance	C_{oss}		-	101	-	
Reverse transfer capacitance	C_{rss}		-	14	-	
Total gate charge	Q_g	V_{DD}=1360V,I_D=2.5A V_{GS}=10V	-	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} = 1360V, I_D = 2.5A, R_G = 25 Ω, V_{GS} = 10 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 A, V_{GS}= 0	-	0.9	-	V
Reverse recovery time	t_{rr}	I_{SD}= 5A, di/dt= 100A/μs V_{DD}= 60 V	-	2.38	-	μS
Reverse recovery charge	Q_{rr}		-	7.6	-	μC

Thermal data

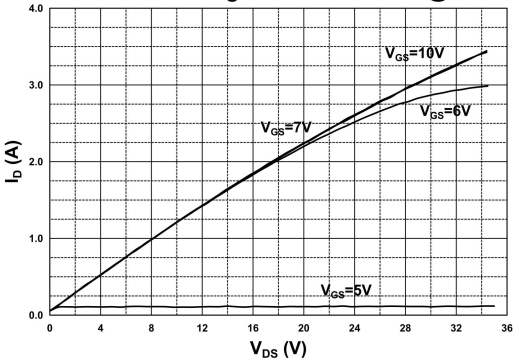
Parameter	Symbol	Value		Unit
		TO-3PH	TO-263	
Thermal resistance junction-case max	$R_{thj\text{-}case}$	2.3	0.8	℃/W
Thermal resistance junction-ambient max	$R_{thj\text{-}amb}$	60.5	52	

Electrical characteristics

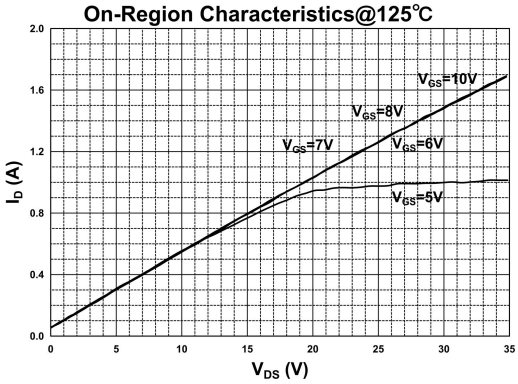
On-Region Characteristics@25℃



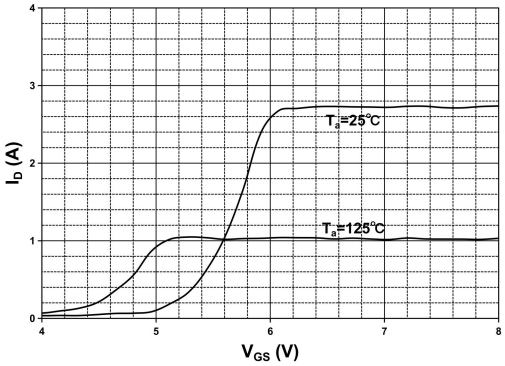
Extended On-Region Characteristic @25℃



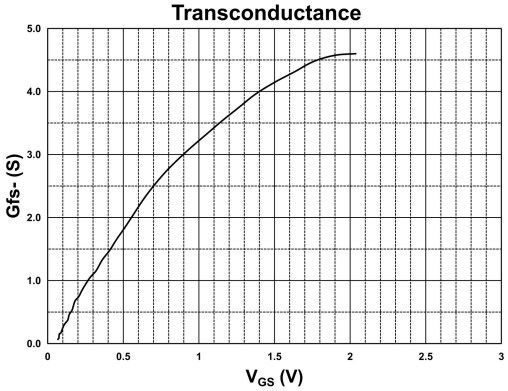
On-Region Characteristics@125℃



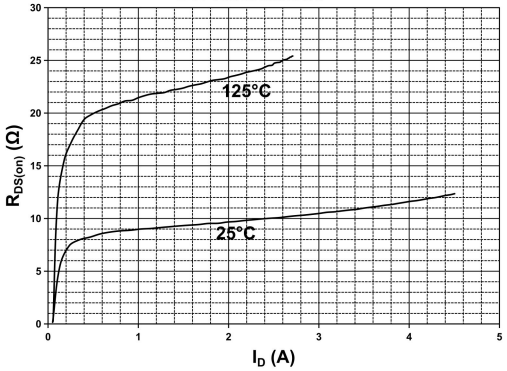
Transfer Characteristics



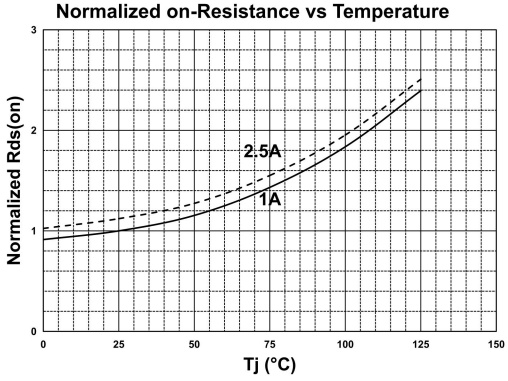
Transconductance



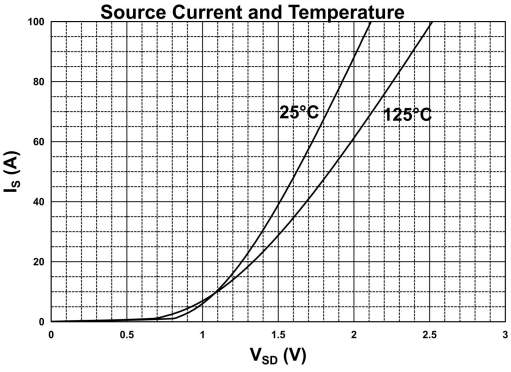
On-Resistance



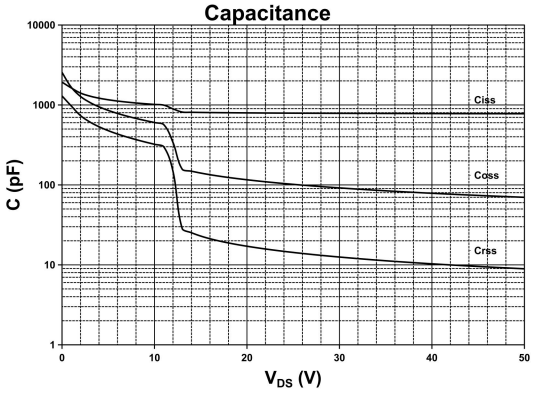
Normalized on-Resistance vs Temperature



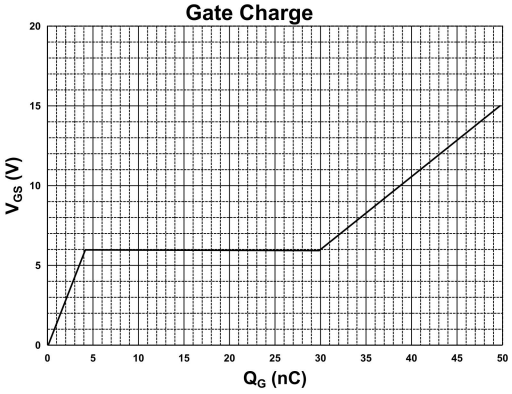
Body Diode Forward Voltage Variation with Source Current and Temperature



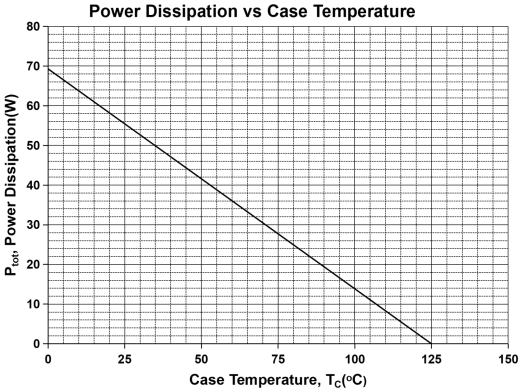
Capacitance



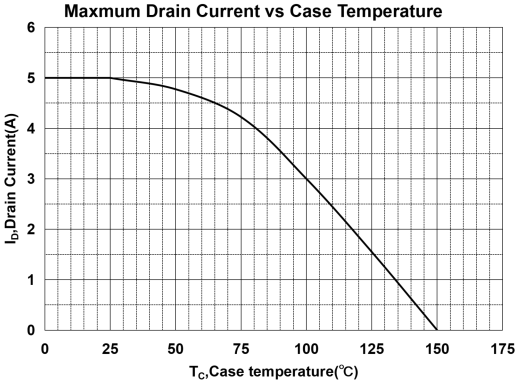
Gate Charge



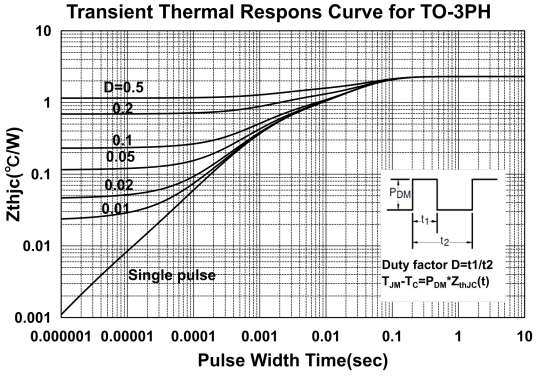
Power Dissipation vs Case Temperature



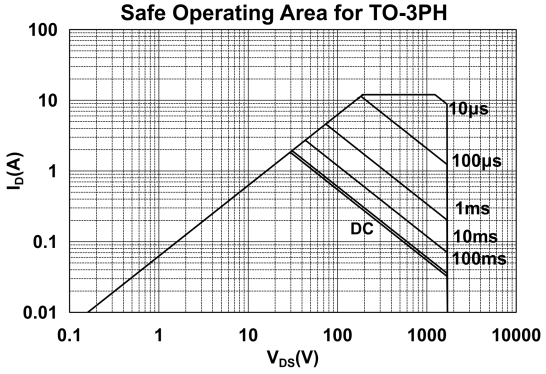
Maxmum Drain Current vs Case Temperature



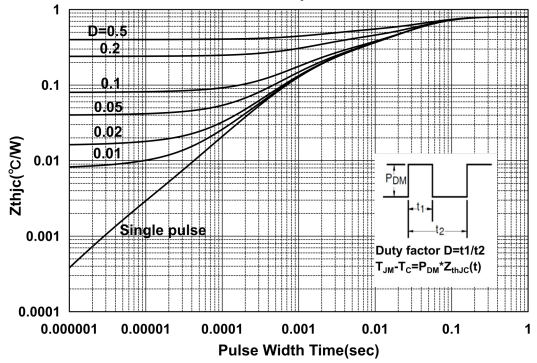
Transient Thermal Respons Curve for TO-3PH



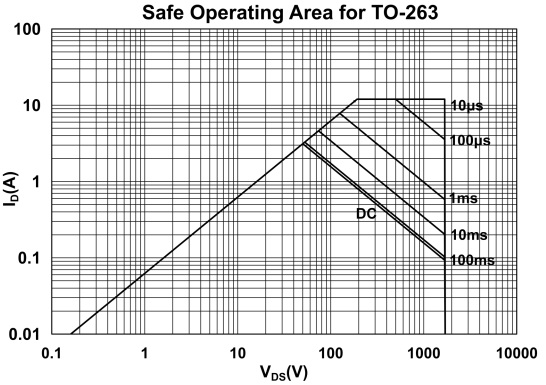
Safe Operating Area for TO-3PH



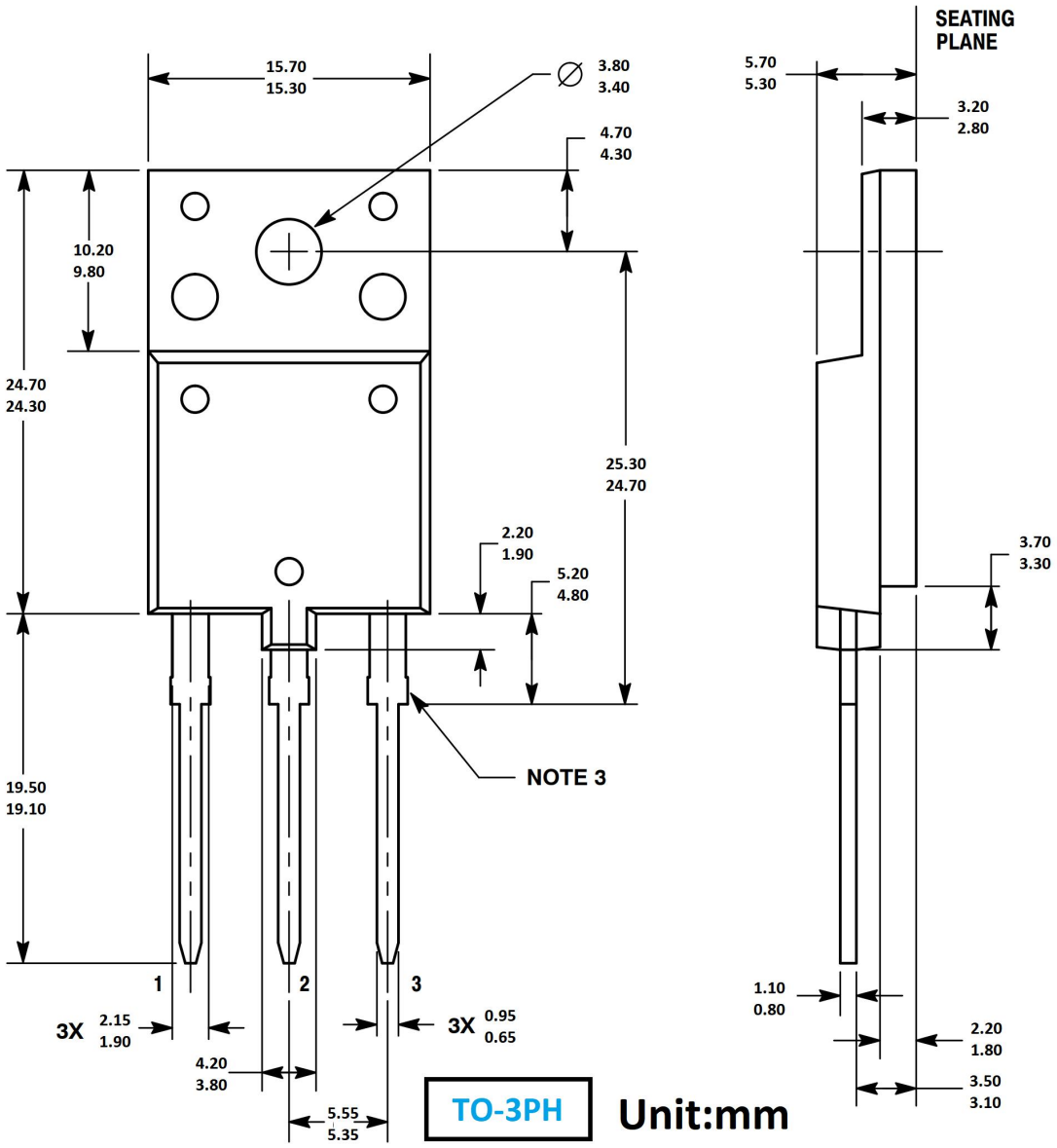
Transient Thermal Respone Curve for TO-263

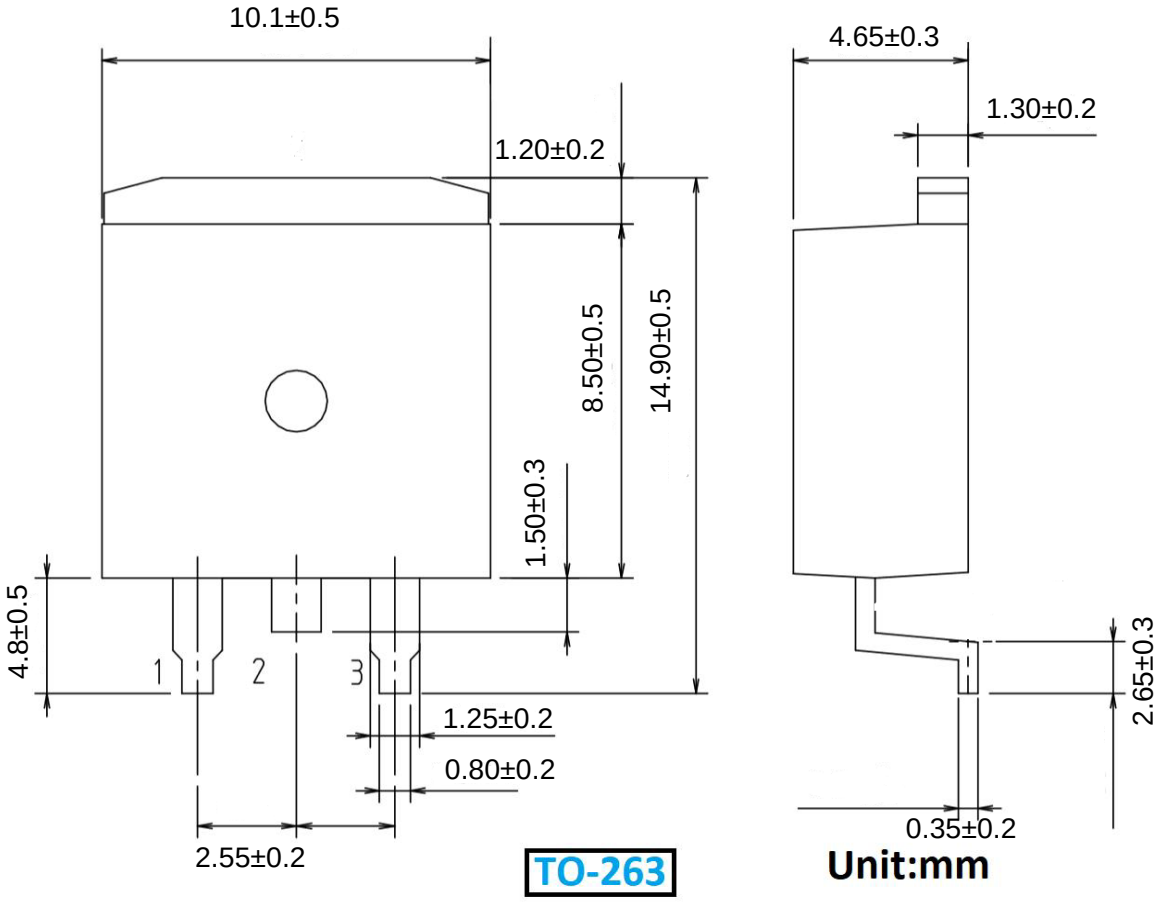


Safe Operating Area for TO-263



Package outline dimension




10.1±0.5
1.20±0.2
8.50±0.5
14.90±0.5
1.50±0.3
4.8±0.5
1
2
3
1.25±0.2
0.80±0.2
2.55±0.2
4.65±0.3
1.30±0.2
2.65±0.3
0.35±0.2
TO-263
Unit:mm

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