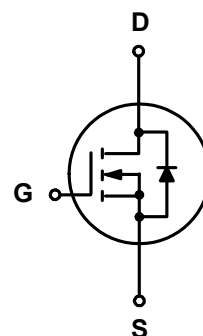
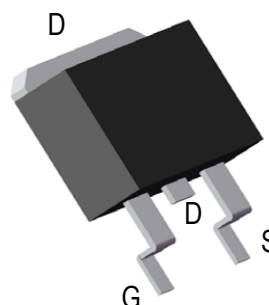


-100V/-90A P-Channel MOSFET

BVDSS	-100	V
ID	-90	A
RDSON@VGS=-10V	17.0	mΩ
RDSON@VGS=-4.5V	22.0	mΩ

TO-263



Features

- Surface-mounted package
- Advanced trench cell design

Application

- LCD TV appliances
- High power inverter system
- LCDM appliances

Order Information

Product	Package	Marking	Packing
M10P90R	TO-263	90P10	800PCS/REF

Absolute Maximum Ratings (TC =25℃)

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _C = 25 °C	- 100	-	V
V _{GS}	Gate-Source Voltage	T _C = 25 °C	-	±20	V
I _D	Drain Current (DC)	T _C = 25 °C, V _{GS} = - 10 V	-	- 90	A
		T _C = 25 °C, V _{GS} = - 10 V	-	- 50	A
I _{DM}	Drain Current (Pulsed)	T _C = 25 °C, V _{GS} = - 10 V	-	- 240	A
P _{tot}	Drain power dissipation	T _C = 25 °C	-	300	W
T _{stg}	Storage Temperature		-55	150	°C
T _J	Junction Temperature		-	150	°C
I _S	Continuous-Source Current	T _C = 25 °C	-	- 90	A
E _{AS}	Single Pulsed Avalanche Energy	V _{DD} = - 50 V , L= 1.0 mH	-	842	mJ
R _{θJA}	Thermal Resistance- Junction to Ambient		-	45	°C/W
R _{θJC}	Thermal Resistance- Junction to Case		-	0.5	

Notes :

1 Surface Mounted on 1 in² pad area, t ≤ 10 sec

2 Pulse width ≤ 300 μs, duty cycle ≤ 2 %

-100V/-90A P-Channel MOSFET
Electrical Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = - 250 μA	- 100	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = - 250 μA	- 1	-	- 3	V
I _{DSS}	Drain Leakage Current	V _{DS} = - 50 V, V _{GS} = 0 V	-	-	- 1	μA
		T _J = 85 °C	-	-	- 25	μA
I _{GSS}	Gate Leakage Current	V _{GS} = 0 V, V _{GS} = ± 20 V	-	-	±100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = - 10 V, I _{DS} = - 30 A	-	17	20	m Ω
		V _{GS} = - 4.5 V, I _{DS} = -20 A	-	22	25	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = - 10 A, V _{GS} = 0 V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	I _{DS} = - 10 A, dI _{SD} /dt = 100 A/μs	-	50	-	nS
Q _{rr}	Reverse Recovery Charge		-	90	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = - 50 V Frequency = 1 MHz	-	6500	-	pF
C _{oss}	Output Capacitance		-	750	-	
C _{rss}	Reverse Transfer Capacitance		-	300	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = - 50 V, V _{GEN} = - 10 V, R _G = 4.5 Ω, R _L = 5 Ω, I _{DS} = - 10 A	-	15	-	nS
t _r	Turn-on Rise Time		-	58	-	
t _{d(off)}	Turn-off Delay Time		-	140	-	
t _f	Turn-off Fall Time		-	100	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} = - 50 V, V _{GS} = - 10 V, I _{DS} = - 10 A	-	75	-	nC
Q _{gs}	Gate-Source Charge		-	11	-	
Q _{gd}	Gate-Drain Charge		-	47	-	

Notes :

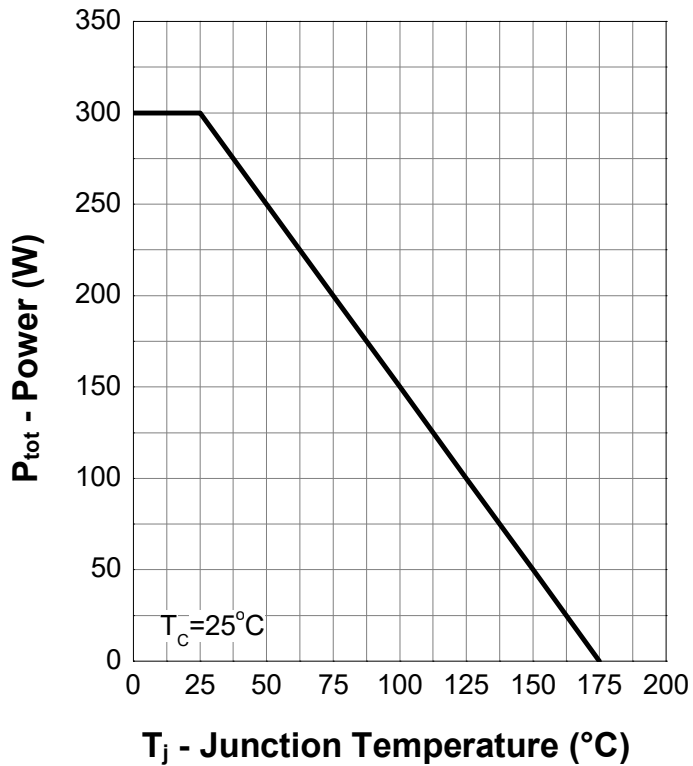
a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

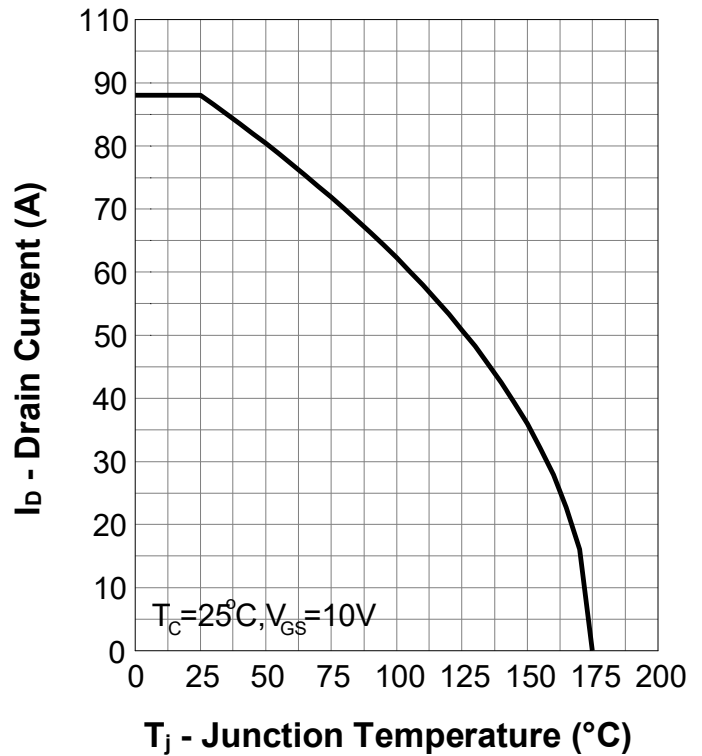
-100V/-90A P-Channel MOSFET

Typical Characteristics (Cont.)

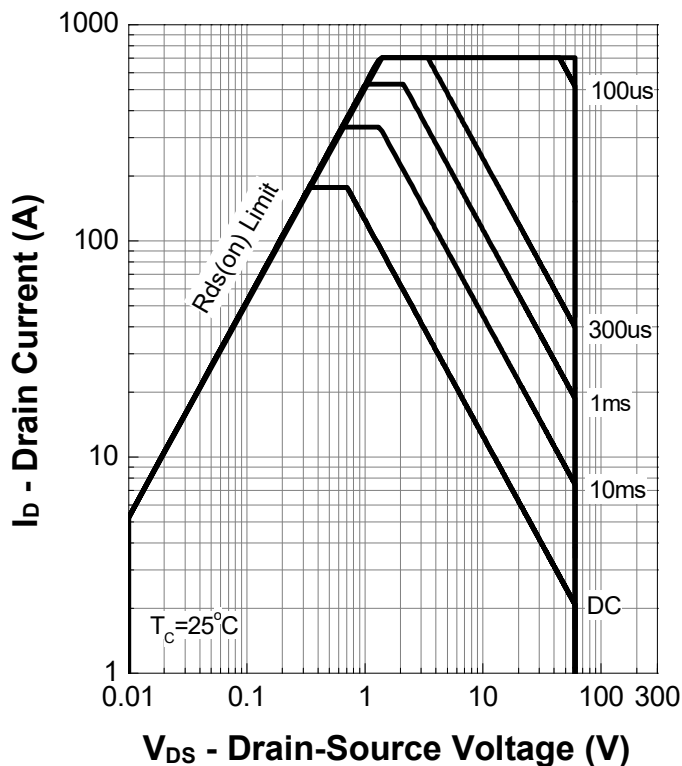
Power Capability



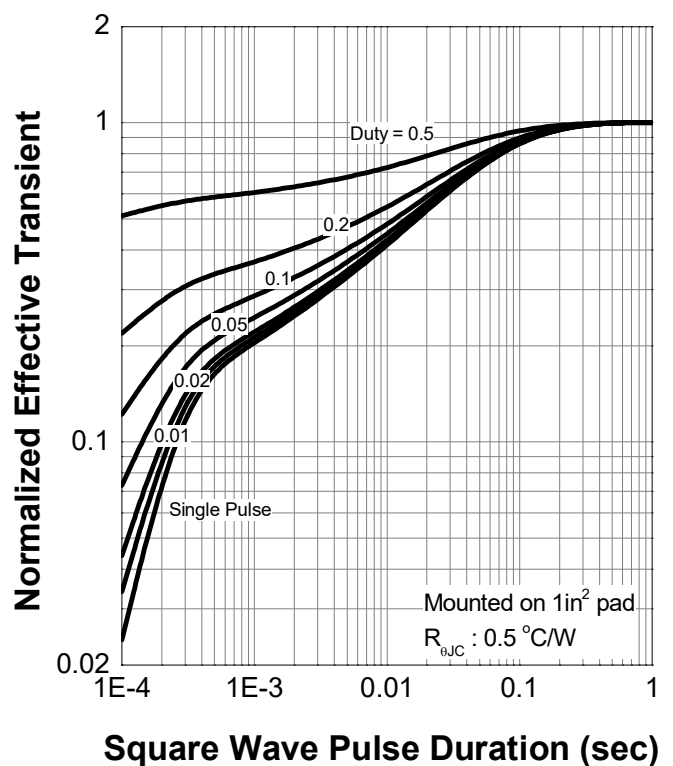
Current Capability



Safe Operation Area



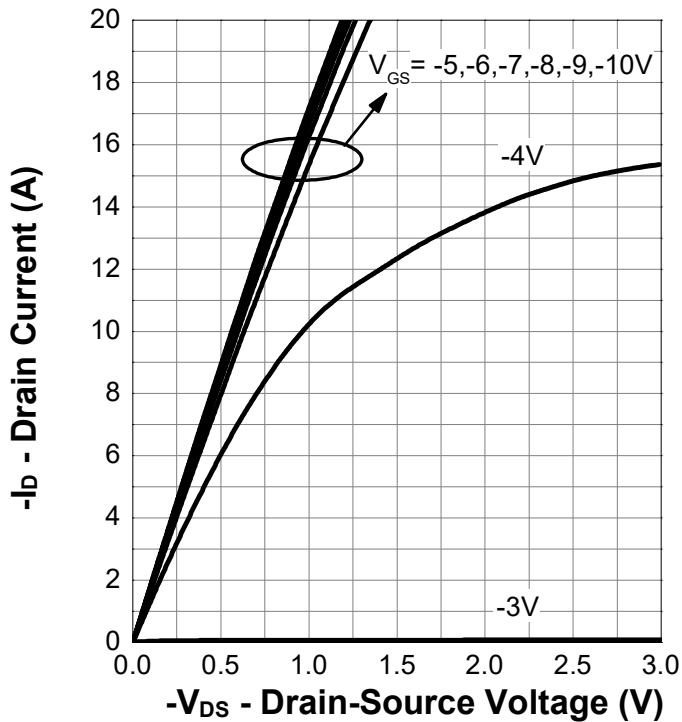
Transient Thermal Impedance



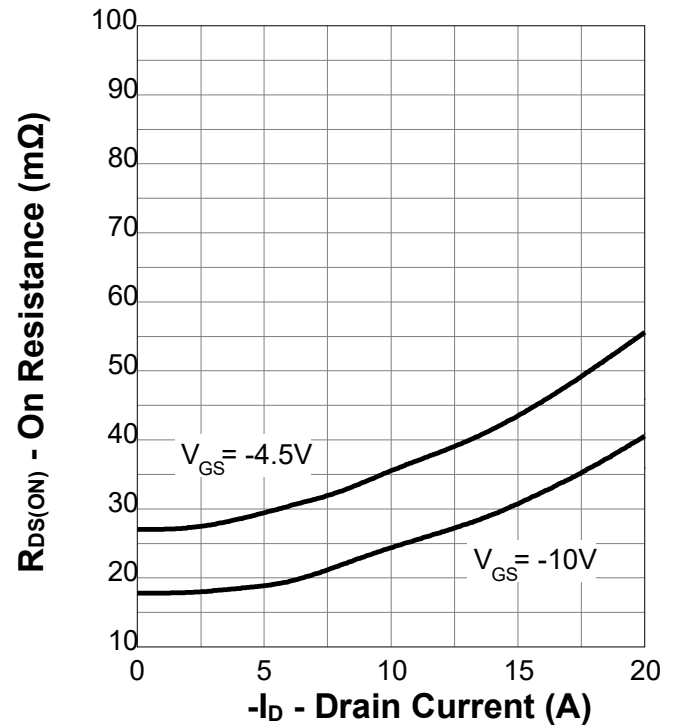
-100V/-90A P-Channel MOSFET

Typical Characteristics (Cont.)

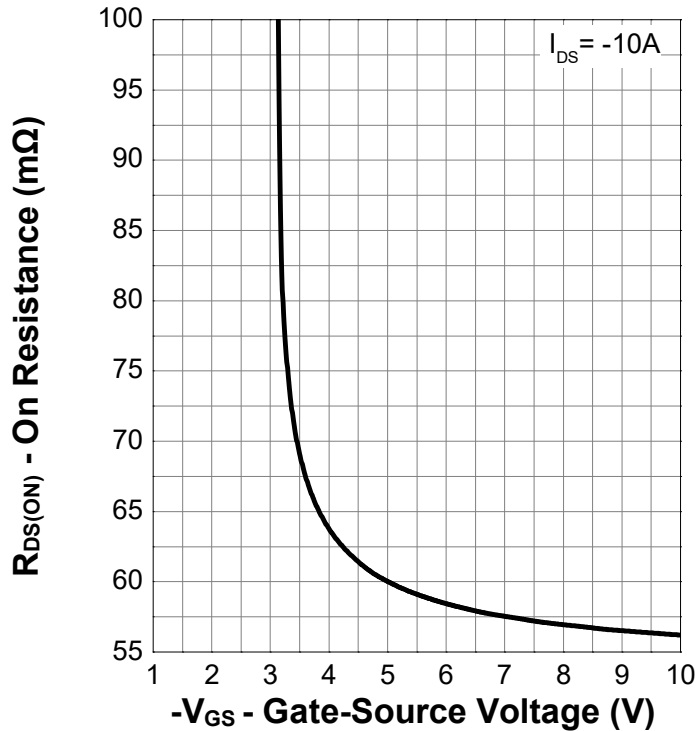
Output Characteristics



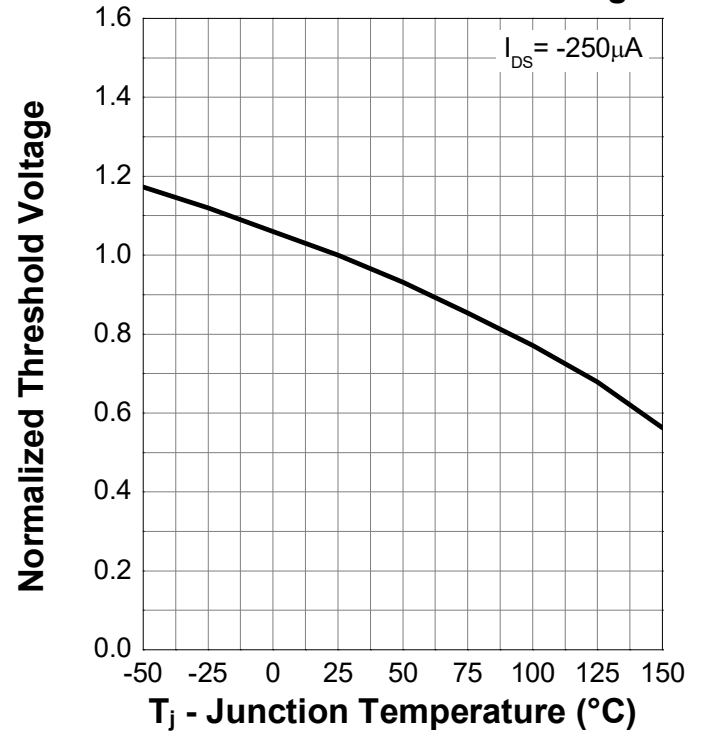
On Resistance



Transfer Characteristics

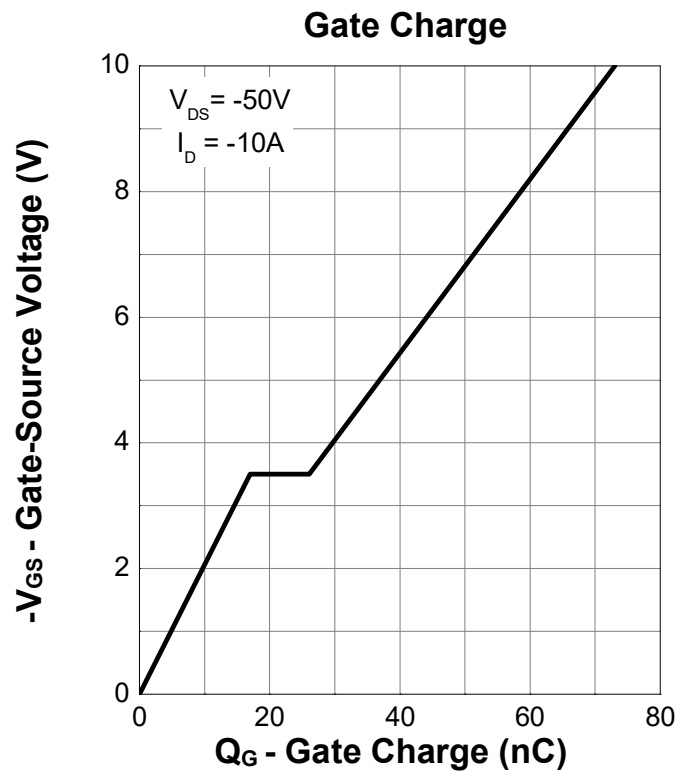
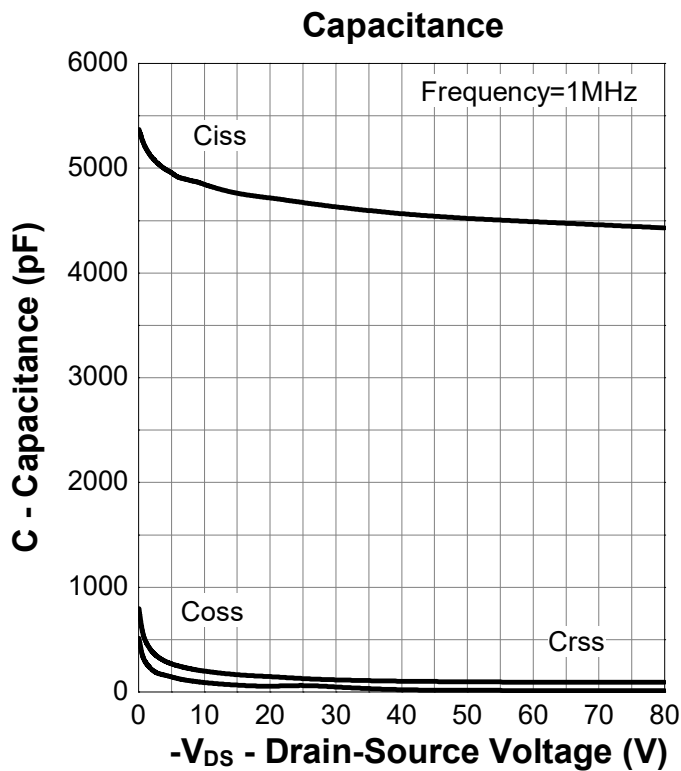
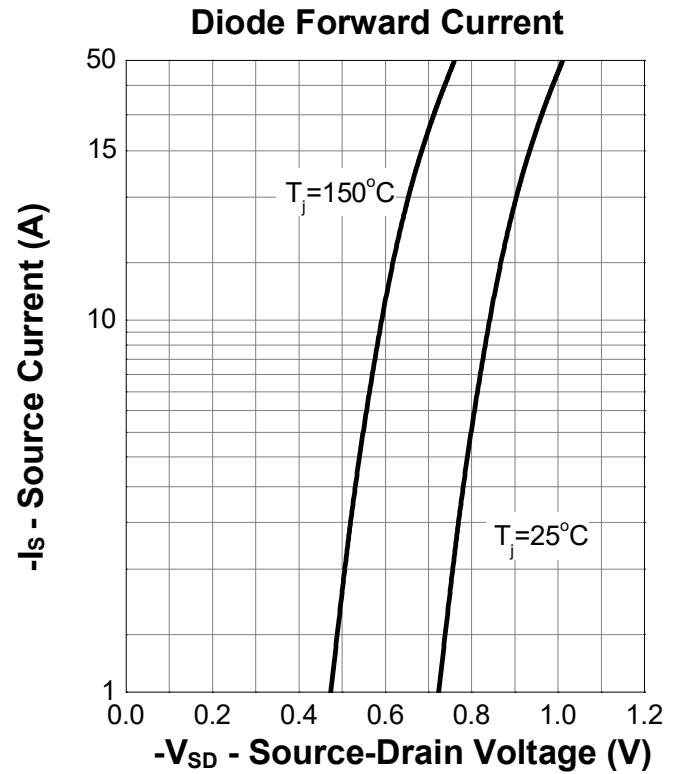
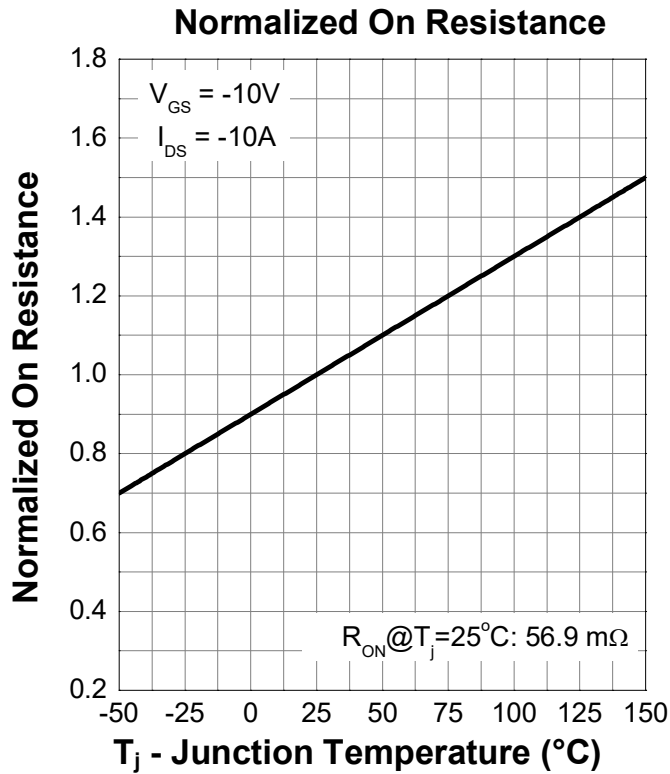


Normalized Threshold Voltage



-100V/-90A P-Channel MOSFET

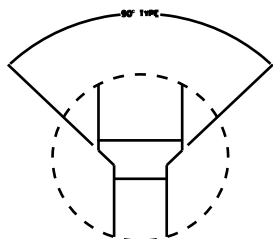
Typical Characteristics (Cont.)



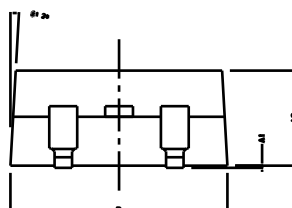
-100V/-90A P-Channel MOSFET

Package Dimensions

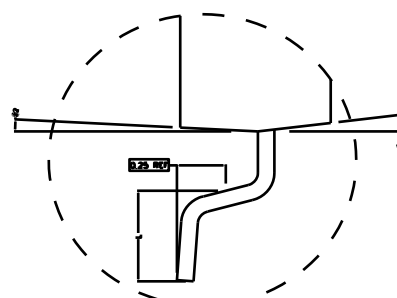
TO263



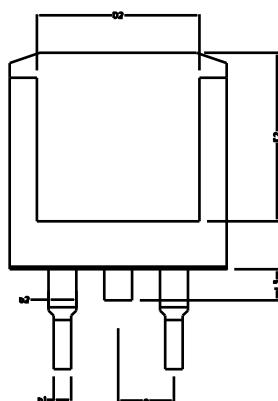
DETAIL F



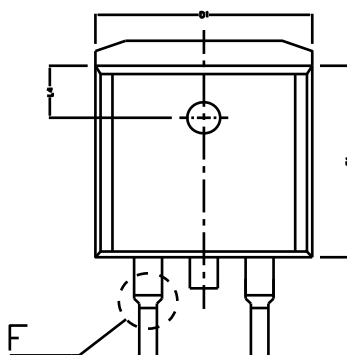
SIDE VIEW



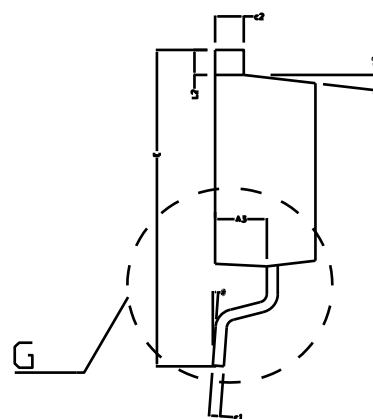
DETAIL G



BOTTOM VIEW



TOP VIEW



SIDE VIEW

COMMON DIMENSIONS
(UNITS OF MEASURE IS mm)

	MIN	NORMAL	MAX
A1	0.020	0.100	0.200
A2	4.470	4.570	4.670
A3	2.300	2.350	2.400
b1	0.750	0.800	0.850
b2	1.220	1.270	1.320
c1	0.450	0.500	0.550
c2	1.250	1.300	1.350
D	9.900	10.000	10.100
D1	9.880REF		
D2	7.400REF		
E	14.900	15.100	15.300
E1	9.000	9.100	9.200
E2	8.100REF		
e	2.540TYPE		
L	2.100	2.300	2.500
L2	1.100	1.200	1.300
L3	1.300	1.500	1.700
L4	2.50 TYPE		
θ1	3° TYPE		
θ2	3° TYPE		
θ3	7° TYPE		
θ4	7° TYPE		
θ	0 ~ 8°		