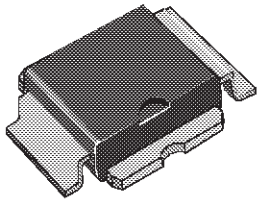
PD55003
PD55003S

RF POWER TRANSISTORS
The *LdmoST* Plastic FAMILY

TARGET DATA

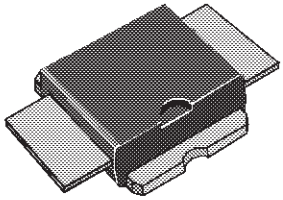
N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- POUT = 3 W with 17 dB gain @ 500 MHz / 12.5V
- NEW RF PLASTIC PACKAGE



PowerSO-10RF
(Formed Lead)

ORDER CODE	BRANDING
PD55003	XPD55003



PowerSO-10RF
(Straight Lead)

ORDER CODE	BRANDING
PD55003S	XPD55003S

DESCRIPTION

The PD55003 is a common source N-Channel, enhancement-mode, lateral Field-Effect RF power transistor. It is designed for high gain, broad band commercial and industrial applications. It operates at 12V in common source mode at frequencies of up to 1GHz. PD55003 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the first true SMD plastic RF power package, PowerSO-10RF. PD55003's superior linearity performance makes it an ideal solution for car mobile radio applications..

The PowerSO-10 plastic package, designed to offer high reliability, is the first ST JEDEC approved, high power SMD package. It has been specially optimized for RF needs and offers excellent RF performances and ease of assembly.

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25 °C)

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current	2.5	A
P_{DISS}	Power Dissipation (@ Tc = 70 °C)	31.7	W
T_j	Max. Operating Junction Temperature	165	°C
T_{STG}	Storage Temperature	-65 to 165	°C

THERMAL DATA

$R_{th(j-c)}$	Junction-Case Thermal Resistance	3.0	°C/W

ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

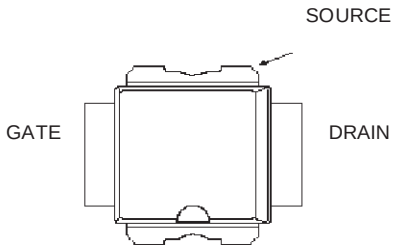
STATIC

Symbol	Parameter			Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	V_{GS} = 0 V	I_{DS} = 10 mA		40			
I_{DSS}	V_{GS} = 0 V	V_{DS} = 28 V				1	µA
I_{GSS}	V_{GS} = 20 V	V_{DS} = 0 V				1	µA
$V_{GS(Q)}$	V_{DS} = 10 V	I_D = 50 mA		2.0		5.0	V
$V_{DS(ON)}$	V_{GS} = 10 V	I_D = 0.5 A				0.36	V
g_{FS}	V_{DS} = 10 V	I_D = 1 A			TBD		mho
C_{ISS}	V_{GS} = 0 V	V_{DS} = 12.5 V	f = 1 MHz		36		pF
C_{OSS}	V_{GS} = 0 V	V_{DS} = 12.5 V	f = 1 MHz		24		pF
C_{RSS}	V_{GS} = 0 V	V_{DS} = 12.5 V	f = 1 MHz		1.6		pF

DYNAMIC

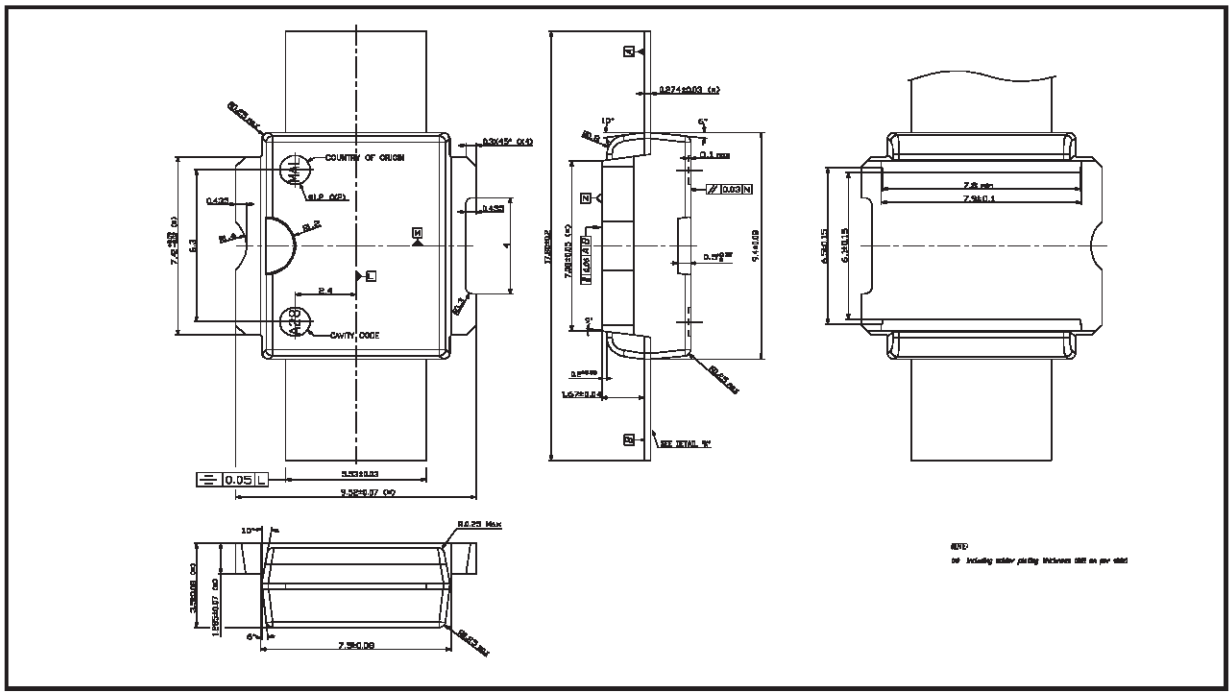
Symbol	Parameter				Min.	Typ.	Max.	Unit
P_{OUT}	V_{DD} = 12.5 V	f = 500 MHz		I_{DQ} = 50 mA	3			W
G_{PS}	V_{DD} = 12.5 V	f = 500 MHz	P_{OUT} = 3 W	I_{DQ} = 50 mA		17		dB
η_D	V_{DD} = 12.5 V	f = 500 MHz	P_{OUT} = 3 W	I_{DQ} = 50 mA		55		%
LOAD Mismatch	V_{DD} = 15.5 V ALL PHASE ANGLES	f = 500 MHz	P_{OUT} = 3 W	I_{DQ} = 50 mA	20:1			VSWR

PIN CONNECTION



SC15200

PowerSO-10RF (Straight Lead) MECHANICAL DATA



PowerSO-10RF (Formed Lead) MECHANICAL DATA